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ABSTRACT

The Hawaii Bound School seeks to provide a significant physical and emotional wilderness experience to those participating in its course. For 24 days a group of 12 students live together and are exposed to a wide variety of wilderness experiences. Among the places visited are the Kohala Mountains, Mauna Loa, Ka'u Desert, and the ocean itself. During the course each student is trained to learn (1) to live and travel comfortably in four wilderness environments; (2) to provide wilderness emergency care and to be part of a search and rescue team, (3) to keep a personal journal; (4) to participate in group discussions; and (5) to gain an appreciation of the cultural, geological and historical heritage of Hawaii. This operations manual is intended for use in the field as a guide and reference for instructors in the Hawaii Bound School. The instructional techniques it explores include teaching models, communication skills, group procedures, and safety programs. It lists the course curriculum content, including first aid training, sanitation, solo experiences, rappel, food, map and compass use, etc. Resource material is given on astronomy, the Hawaiian calendar, Hawaiian skills, plants, fish identification and use as food sources, aquatic plants, Hawaiian history, land divisions, religion, legends and songs. An environmental summary and place names are given for each of the four wilderness sites. (DS)

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KE KUHIKUHI ALAKA'I

Operations Manual

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INTRODUCTION

Ke kuhikuhi alaka'i means a guiding gesture. We have selected this phrase as the title to our operations manual for several reasons. First, Hawaiians were a people without a written language, consequently their learning was guided by someone who gestured or pointed the way. Their education (and that on a Hawaii Bound course) was rich in experience, rich in oral communication, and rich in practice.

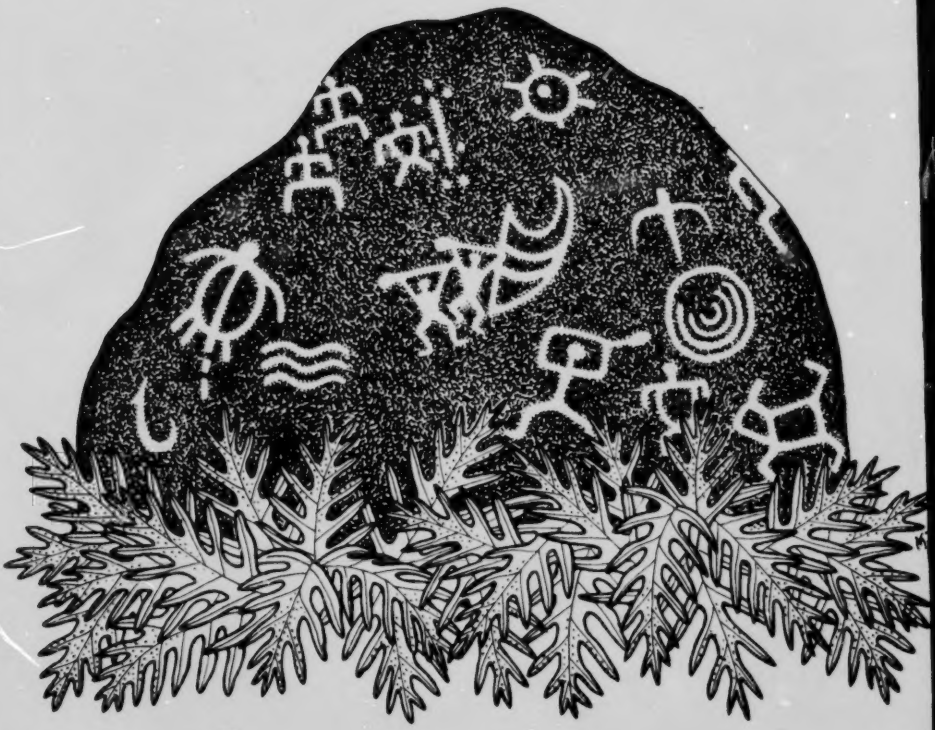
Second, ke kuhikuhi alaka'i is used to indicate that fully developed instructors will be able to use this manual in the field as a guide and reference. Others, assistant instructors, resource people, and trustees can look to Ke Kuhikuhi Alaka'i as the primary resource on Hawaii Bound's educational program. For everyone it is the touchstone from which programming and evaluation begin.

Ke Kuhikuhi Alaka'i has been assembled over a period of three years and will continue to grow with the evolutionary changes of Hawaii Bound. It is also an expression of the work of many hands and minds over the years, beginning with Kurt Hahn who founded Outward Bound in the 1940's, and culminating in the recent contributions of trustees, community supporters, students and instructors of Hawaii Bound. Our mahalo nui loa to the many, many contributors in the evolution and production of Ke Kuhikuhi Alaka'i.

Spring, 1979

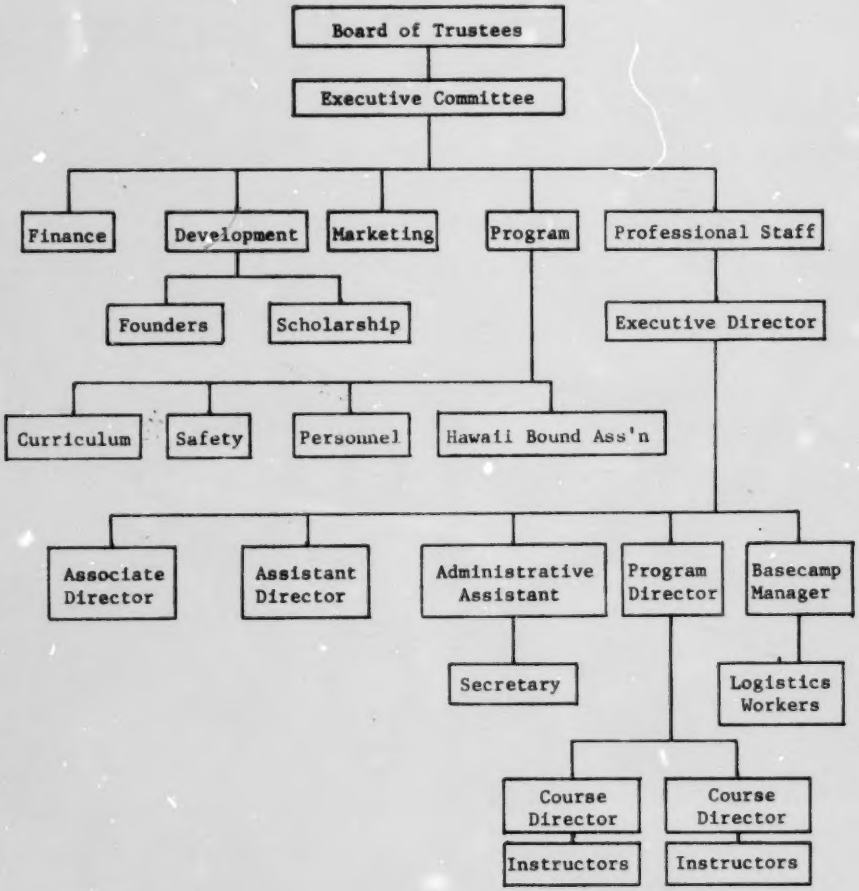
SCHOOL PURPOSE

Our purpose is to provide the unique opportunity for a significant physical and emotional wilderness experience in the life of each participant; a starting point, a turning point, or a reaffirming point from which a more fulfilling and productive life may be pursued.



SCHOOL STRUCTURE

Corporate Structure The Hawaii Bound School, Inc., is a non-profit corporation granted tax-exemption by the Internal Revenue Service. It is governed by a volunteer Board of Trustees. To exercise their responsibilities, the Trustees have organized themselves into eleven working committees. Each committee has a statement of purpose and responsibilities and reports to the Board through the Executive Committee. Nearly fifty community leaders volunteer their service through comittee work. The committee and staffing structure of Hawaii Bound is represented in the diagram below.



THE INSTRUCTOR

As a Hawaii Bound Instructor many roles will be required of you as you proceed from course planning to teaching and writing course reports. The roles are safety expert, planner, teacher, wilderness guide, leader, observer, disciplinarian, resource person, model, report writer, and inspiration.

In addition to these your students see you in other roles that you or they project; hero, heroine, sex object, cop, buddy, jock, brudda', sista', guide, boss, friend, mother, father. Other roles you are playing out at Hawaii Bound on your own volition add to this mosaic; student, spiritual path follower, wage earner, environmentalist, experiential educator.

The dynamics involved in a group of twelve people living together for 24 days are complex and at times confusing. However, it is clear that you need to be aware of the required roles and how to be effective in each of them. Knowing accurately when you must be assuming various roles and anticipating your students expectations is the mark of a seasoned instructor.

Each required role assumes a function you must perform to advance the course. Each role has demands you must accept and discharge easily. Your success as an instructor is the extent to which you learn to fulfill all roles responsibly and to develop skills to handle roles that are initially troublesome. Here are brief descriptions of instructor roles.

Safety Expert Your role as safety expert requires you to be ever mindful of the well-being of students and yourself. During the course you will make judgements and decisions that relate to safety. Always be conservative and weigh safety as the most important factor in decisions.

Planner As an instructor you must plan your work. A course well planned in writing gives you direction and increases the probability of success. Planning is an everyday process; what to teach first, where to hold a discussion, how to teach a specific lesson when to start a conversation with a student about a developing problem. These kinds of planning are essential to successfully lead the course experience.

Teacher Each day you will be called upon by students and situations to teach. Learn this role well and you will be well on your way to reaching the course goals. Being able to teach is so fundamentally important that a special section is devoted to this skill. It is the section titled Teaching Models.

Wilderness Guide Your role as wilderness guide will demand of you knowledge and expertise in many situations. There are dozens of skills and camping tips that you can share. Students are generally an insatiable and appreciative audience. You will be expected to know the environment, the trails, and will be asked what it will be like up-ahead. The more you know the more fascinating and productive the course will be for your students.

Leader Establish yourself as the leader of the course from the beginning. Being a confident, assertive, sure leader allows students to be trusting and learn better. When students trust you as leader in familiar situations they will more likely trust you in unknown, threatening situations.

As the leader Hawaii Bound expects you to be the guide in group meetings, including briefings, interviews, kaukau, ho'oponopono, and appreciations. The course and its outcomes largely reflect your leadership. It is imperative that you know the effect you have on students.

Observer The role of observer is important to the personal growth aspects of the course. You need to be able to see individual and group behavior and describe it back to the students accurately and non-judgementally. It seems simple to say you role as an observer is to "see" and report and what you "see". In real situations this is a difficult skill to master. But it is important to observe accurately because in group meetings and during interviews you comments have a tremendous impact. This is in part because you are the leader. It is also due to the fact that people rarely receive positive, non-judgmental feedback.

Disciplinarian School rules are made to protect students and the school. You are the enforcer of rules and must assert yourself should a situation arise where guidance or correction is necessary.

Resource In this role you will need to have knowledge or ready access to information about the environment, history, culture. This manual is a back-up resource. Other books and resources are provided at Basecamp.

Model Because your actions and behavior are constantly being watched by students take every opportunity to teach by modeling. Being obvious in the way you pack or set-up camp will give students a chance to copy you. In group meetings, after giving instructions, be the first to demonstrate what you mean. This modeling will set the tone for the experience. Whenever you have expectations about how an experience should be (a quiet pule before meals) tell students what you want and model the appropriate behavior.

Report Writer Writing student reports at the end of the course and field reports periodically are necessary functions you will perform. Planning and careful not taking will aid you in this task.

Inspiration This is a personal quality you bring to the instructor's job. It is included as one of the expected roles without defining precisely what it is. For some instructors it is skill in poetry or storytelling or music, for others its the special way they relate to the wilderness in Hawaii. Let your uniqueness shine during the course.

JOB DESCRIPTION

JOB TITLE: Instructor
REPORTS TO: Course Director or Program Director
REPORTING TO THIS POSITION: Assistant Instructor
COORDINATE POSITIONS: Instructors

Responsibilities:

1. Submit a completed Course Plan to the Course Director of Director prior to the course for approval.

2. Conduct the course as planned with necessary field changes being reported to the Course Director or Program Director

3. Conduct the course in accord with:

   a. the Hawaii Bound Statement of Purpose
   b. the Hawaii Bound Safety Program
   c. the Hawaii Bound Course Goals
   d. the Hawaii Bound Curriculum

4. Submit a course report on each student at the termination of the course.

5. Report any problems or unusual occurances to the Course Director or Program Director as soon as possible.

6. Report any injury or illness to the Course Director or Program Director as soon as possible and assist them in completing a Workman's Compensation claim.

7. Instruct and supervise any Assistant Instructor assigned.

Authorities:

1. Remove a student from the course when rules are violated, or when deemed in the best interest of the student, the school, or the group.

Accountablities:

1. Accountable for completing the responsibilities outlined above.

THE COURSE DIRECTOR

The Course Director or Program Director will accompany 'ohana during portions of their expeditions. Several functions are served and they are outlined in the Job Description of the Course Director. To take advantage of this resource an instructor should integrate the Course Director into the 'ohana and the teaching. The Course Director's presence will bring added manpower to assist the instructor, but this person does not assume leadership of the 'ohana. Plan quiet time for discussing the progress of individuals and the 'ohana with the Course Director. Discuss problems you are encountering and use the Course Director's perspective to assist you in learning more about yourself, your students, and your progress.

JOB DESCRIPTION

JOB TITLE: Course Director
REPORTS TO: Program Director
REPORTING TO THIS POSITION: Instructors, Assistant Instructors
COORDINATE POSITIONS: Course Directors, Basecamp Manager

Responsibilities:

1. Field supervise and train instructors in the preparation and implementation of:

   a. the Course Plan
   b. the Safety Program
   c. the Curriculum

2. Work in the field with the Instructor and students as an added resource in teaching and counseling.

3. Submit these reports from the field; Accident Reports, Field Information Reports, Student Drop-Out Report.

4. Inspect and approve the instructor's Course Reports and submit them to the Program Director.

5. Evaluate the performance of the instructor using the Instructor Evaluation Plan.

Authorities:

1. Remove a student from the course when necessary.

2. Recommend the removal of an Instructor for rule infractions, incompetence, or whenever deemed in the best interest of the school.

COURSE GOALS

Goals are outcomes....outcomes toward which the Hawaii Bound effort is directed. While planning and conducting a course keep the ultimate goals clearly in mind. Measuring the achievement of course goals listed below, we expect higher levels of functioning in each goal area toward the end of the course when compared with the beginning. This implies that goals are not absolutes but qualities that are measured in terms of more or less. It is the instructor's job to encourage and guide growth toward higher levels of functioning in each goal area.

Generally goals cannot be taught directly. An instructor cannot help someone become more confident by telling him/her that this is what he/she needs to be. Enhancing self-confidence is done indirectly by teaching skills and testing those skills through experiences. As a person becomes more skilled and more experienced they will become more confident. The following are the course goals. They are grouped into catagories for convenience.

Goals regarding safety

- all students complete the course healthy
- all instructors complete the course healthy
- all personnel learn safe wilderness skills and attitudes
- equipment maintained well

Goals for individuals regarding self

- self-aware
- self-accepting
- self-disciplined
- self-confident
- comfortable alone
- is in charge of own life and growth

Goals for individuals regarding others

- accepting
- appreciative
- trusting
- respectful
- friendly, open
- cooperative
- communicates well
- empathetic

Goals for individuals regarding the course

- accomplishes personal goals set before course
- learns outdoor skills
- appreciates nature
- values performing service
- faces and resolves fears
- learns and appreciates Hawaiian culture
- learns leadership
- knows how to learn from experience

Goals regarding the 'ohana

. learns to resolve problems
. develops aloha
. organizing ability
. spirit of toleration
. works cooperatively
. atmosphere of openness
. atmosphere of support

Goals regarding instructors

. course goals of individuals met
. all group conflicts resolved
. satisfied with course experience
. closure of experience, complete in 25th day
. paces self to last many courses

Goals regarding the school

. satisfied students
. satisfied instructors
. natural environments improved
. evaluation and improvement occurring
. positive public relations

INSTRUCTIONAL PHILOSOPHY

Our instructional philosophy is a group of guiding principles used in course design and instructing to lead us to the attainment of the course goals. These philosophical anchors explain why we operate as we do and a thorough understanding of these principles will help instructors guide students through the course with a purpose clearly in view.

Challenge Challenge is a necessary ingredient to life. Challenges help us learn what our resources are, who we are, and where we need to grow. Challenges met provide rewards of joy, well-being, and identity.

In one sense we sell challenge to people when they sign up for the course. Most obvious are the physical challenges, i.e. "Can I make it to the mountain top?" Often students don't immediately see the challenges of building an 'ohana, or helping a quiet student become more involved in the group. One task of an instructor is to broaden everyone's idea of what a challenge is and how success is measured. Remember that after the course some students report that the most significant challenge of the course is learning patience and acceptance.

Competition and Cooperation One course goal is to develop a cooperative 'ohana. To accomplish this the experiences of cooperation and competition need to be explored. These two concepts are often viewed as being mutually exclusive. This need not be so. Many students, particularly males, have high needs to achieve physically and usually choose competition against others as a measure of achievement. Wanting to be strong and physically challenged is healthy, but it can become shallow to see every hike, every paddle, every swim as competition with others.

Encourage the idea of competing with oneself or one's previous best performance for these students. One effect of highly competitive persons on the rest of the 'ohana is constant physical separation and judgement about the inferiority and incompetence of the slower members of the 'ohana. As you guide individuals to channel their competitive energies creatively, the atmosphere for cooperative effort is enhanced.

Contrast Rapid alterations of activities and living conditions during the course has a disorienting effect on students. It awakens the senses and tests the individual's coping behaviors. The reactions to contrast are the raw material for learning about ourselves and others. Here are some of the contrasts designed into our course: wet/dry, day/night, hunger/satiation, fatigue/rest, sea level/high altitude, lush vegetation/barren lava, 'ohana/solitude, the quiet of Hawaii/the noise of Oahu, fear/elation, confusion/certainty, hard work/rest, inner tension/release, laughter/tears, weakness/strength, salt water/fresh water, hot/freezing, strangers/friends.

Dependency to Self-Sufficiency One course goal is to develop self-sufficiency. Movement toward independence and self-sufficiency is the single most important growth area for the majority of students. It is the area of behavior that is most dramatically addressed by the course activities.

Students begin the course utterly dependent on instructors. They need to gain self-sufficiency quickly in some activities; cooking, map reading, camping activities, emergency care, and personal hygiene. As further course activities occur, the growth of individual and group ability should be noticeable.

However, each change of environment recreates their dependency on instructors for a time. They need to learn new skills for safety and comfort. Make special efforts to be supportive at these times and encourage the 'ohana to take responsibility again quickly.

Discipline A part of being in control of your own life is being disciplined. During the course this quality is tested and can be further developed. The course rules must be observed, but in addition the discipline of self-care, equipment care, environmental care are important areas for learning greater discipline.

Hawaiiana We want our students to understand the biological, geological, and cultural heritage of Hawaii. This understanding aids them in understanding their place in history and the geo-political world. Opportunities to teach Hawaiiana present themselves continually through the course. It is important that students know more than a collection of unrelated facts, but gain perspective on how the Hawaiian heritage affects their lives.

Here and Now Our course is an exercise in contact with the immediate. Particularly for the adolescent, learning to deal with the reality of now, whether painful or pleasurable, is a very important experience in knowing who he/she is. We believe it is healthy to accept and confront the reality of situations throughout the course without escape to daydreams, fantasies, or drugs. In this respect it is very important for students, especially younger ones, to face the here and now realities and learn to derive some satisfaction and understanding out of their experiences every day.

Individual and Group Identities During the course we plan for each student to develop a strong sense of personal identity and a strong sense of identity to the 'ohana. Both identities need to be understood and developed. Many students sense a conflict between these two identities. Some people require far more time to themselves than others. A few students never take any time to be alone. There is a balance to be achieved.

Coordinating the needs of twelve people with the need of the group rarely happens without friction. It's safe to say it never happens without friction. Talking about conflicting needs eases stress and promotes cooperation and accommodation. Discussing these roles can lead to valuable insights about positive group membership and simultaneously maintaining personal integrity.

Interpersonal Relations To perform to the goals of the course it is absolutely necessary to develop smooth and effective interpersonal relations within the 'ohana. This is possibly the area of the course where students learn more than in any other. Effective group relations are built on communications skills, acceptance, support, problem solving skills, shared experiences, and appreciations.

This is also the area of the course that takes the most attention, perserverance and hard work for the instructor. The rewards at the end of the course will repay the efforts beyond expectations.

'Ohana We treat our group as an 'ohana because it is one of the most fundamental and important relationships we have with others. Learning to manage this relationship well can be a source of enormous strength through life.

'Ohana is the Hawaiian term for family derived from the taro plant. (Ohā-taro shoot and nā-plural/or many). The concept of 'ohana as defined in Nānā i ke Kumu is "a sense of unity, shared involvement and shared responsibility. It is mutual interdependence and mutual help. It is emotional support, given and received. It is solidarity and cohesiveness. It is love-often, it is loyality-always. It is all this encompassed by the joined links of blood relationship."

In a strict sense it is the extended and permanent blood relationships that are the cornerstone of an effective 'ohana. For Hawaii Bound we share no such relationship yet seek to stress the unity and compassion of the 'ohana spirit. That spirit is a vital part of the Hawaii Bound experience and is an important part of the legacy that we hope to leave with our alumni.

Pule (prayer) plays an important part in the 'ohana spirit. A pause before meal times to gather the 'ohana, to join hands and focus it on powers outside ourselves will reinforce the unity we seek. It is a time when each student may express an appreciation, an apology, or a statement of gratitude.

For Hawaii Bound, 'ohana is as much an objective as it is a natural result. The unifying of a group of strangers into a caring family grows out of shared experiences. The reliance on each other for safety, support, subsistance and learning creates the arena for unity as well as for conflict. The ability of the instructor and the group to deal with individual conflicts and to solve them jointly is an important part of the success of the Hawaii Bound experience.

Peer Pressure When a student ends a course and says he/she learned how to be a group member and that he/she can function in any group and deal with peer pressure he/she has learned a very important lesson, especially for a teen.

Pressure from peers and others is incredibly powerful. Peer pressure can be both positive and negative in its impact. Encouraging a student over a rappel or in ho'oponopono is positive so long as the individual takes ownership and responsibility for his or her accomplishment. Performing because the group demands it is caving-in to peer pressure and delates self-confidence and reinforces manipulation.

"Processing" Group Experiences A vital element in our instructional philosophy and in the long range effect of the course is the degree to which students articulate and learn from their experiences because people have no skills for looking back and examining those experiences.

The single most important step in learning from experience is being able to articulate thoughts and feelings about the experience. This skill can be learned at Hawaii Bound through teaching students how to "process" experience.

The word "process" comes from group dynamics studies and means talking about an experience on two levels; first, talking about the group's experience, and second, talking about what it felt like to be a member of the group during the experience.

During the course it is important to "process" experiences often. For example, after a six-hour grueling hike to Halape a "processing" session uncovers information from students on where they went, who led, who followed, who read the map, who got sick, who needed support, who helped out.

The second level of "processing" focuses on how individuals felt about the group during the hike, what they felt about their own role, their behavior, whether they feel close or distant from others as a result of the experience, and whether there are unresolved conflicts brewing that need resolution. Simply put, "processing" is first talking about what happened and then talking about how individuals feel about what happened. Both levels of discussion are necessary to gauge the strength of the cooperation and trust in the group.

During processing sessions much valuable information is exchanged and pent-up feelings released. Students learn how others are feeling after being through the same experience. These revelations are enlightening and give students ideas on new ways to behave and react to stress and challenge. Much of the information shared in the group is helpful to individuals by letting them know what effect their participation had on others.

Safety Our emphasis on safety reflects our belief in the primacy of the health and well-being of each person. It also reflects our care for ourselves and the school which both must operate safely to continue benefiting students.

Safety is more than an accident free course. It is an attitude your students must learn, it is rules you must enforce, and it is being aware of hazards and acting to avoid accidents. Bringing your students to an awareness of safety and then to making responsible decisions and acting safely is a primary task of the instructor. One sign of a mature, safe group is when individuals realize that taking personal responsibility for their own safety and health is one of the highest forms of group membership.

Service Performing work on trails and beaches and developing skills as a Search and Rescue Team are important experiences during Hawaii Bound. Performing service to others without expectation of reward greatly enhances a student's sense of involvement in society and the feeling of being needed. Students trained to clean their environment and travel without leaving a trace are more likely to relate in a more caring way to their home environment.

Service projects also contribute to meeting another course goal; improving the natural environment in which we conduct our activities.

Skills Training Learning skills confers competence. Competence builds confidence. Teaching skills immediately and thoroughly accomplishes several things. First, each student gains some control over his/her situation. Second, the 'ohana begins to function as a unit and is less dependent on the instructors. Third, students begin the step by step process of gaining self-control, confidence, pride and skills. During the early days of the course dedicate your energies to teaching, teaching, teaching. Each student should complete the course knowing how to tie basic knots, light the stove, read the compass, etc. These should be learned in the first environment.

Stress Stresses are part of living. The activities of our course naturally produce stress in both individuals and the group. Some of our activities are designed to evoke certain kinds of stress in students so that they can learn to deal with it. Examples are the rappel, solo, climbing the mountain. Our philosophy is to learn from natural and understandable stress.

There are cautions, however. Continual and unreasoned stress is pointless. Enormous stress or artificially created stresses can destroy confidence and create fear and hostility. It is important to know the ways students are stressed (being away from family, riding in an airplane, being alone, speaking in a group). An important safety awareness is knowing when to halt an experience to reduce stress to manageable levels.

INSTRUCTIONAL TECHNIQUES

Teaching Models

Three teaching models are described below, each designed for particular teaching situations. They are: teaching skills, conducting group meetings, and assisting personal growth.

Teaching Skills This brief checklist can be used for quick reference as a reminder when teaching skills and techniques.

1. Develop "need to know"
2. Physical setting
3. Clear presentation
4. Practice experientially
5. Evaluate
6. Review

"Need to Know" The majority of our teaching is done in response to an immediate need to know. We teach canoe lashing on the beach just prior to launching. We teach cooking at mealtime. When teaching isn't done just prior to an obvious challenge try to create a desire to learn or a "need to know". A good first aid simulation creates an awareness in students that they don't know something and that they may really need to know it soon. Thus, they pay attention and learn better.

Physical Setting Be certain your students are comfortable, can hear and are able to see. Be aware of the distractions of sunlight, heat, rain, wind, and pounding surf. Move your group if necessary to a setting that is more conducive to learning.

Presentation Match your language to your actions. It is disconcerting to have an instructor point to an elbow and call it a knee or say left when the correct direction is right. Be accurate in your descriptions using names to describe objects rather than "thing" or "da kine".

Present the material in steps so it can be learned in small segments. Don't overwhelm students, you will end up having many of them "turn off". Be patient and thorough.

Encourage questions, this is one way to effectively involve students in the material and assure their learning.

Practice Experientially When essential information has been transmitted, involve students in experiences using the new information or skill. Be attentive as new skills are tried to assess whether people are actually learning proper skills and techniques. Don't hesitate to correct and further explain. When you spend extra time teaching the basics you and your students will be amply rewarded by having safer, and more enjoyable experiences.

Evaluate Occasionally focus on how students are progressing. For example, are the tarps erected correctly after the first week; do students know how to paddle correctly after a day on the ocean? This periodic evaluation will help you spot weak areas that need further attention.

Review Many lessons at Hawaii Bound are complex and take time to master. Brief reviews of basic lessons with time for questions will assure a more solid grasp of skills, techniques, and knowledge.

Notes

Conducting Group Meetings Before conducting meetings such as a "processing" session, holding interviews, conducting a ho'oponopono, introductions or any kind of a structured experience, have a plan. If you want a structured experience, provide a structure. If you want your 'ohana to go along with what you want to happen, tell them what your plan is and what you expect from them. Here are four specific steps to follow:

1. Explanation- Take time at the beginning of each meeting to provide guidance to the 'ohana. For example, if you are sitting at the airport about to introduce yourself and learn a little about the students, tell them that is your intention. Then explain how you plan to go about doing it.

2. The Experience- After the explanation answer questions then proceed with the experience. Unless you're doing something like a ho'oponopono, you might want to limit the experience in time. You get more accomplished faster, help the 'ohana focus on the task and give a sense of order to the experience. Adding an element of stress by limiting time can make a situation interesting. Example: For introducing an 'ohana at the airport, ask them to join in pairs and take five minutes to find out from each other their name, one thing they are good at doing, one thing they look forward to doing on the course, and one adjective that describes them.

3. "Processing"- Provide time for the 'ohana to share their perceptions, learnings, feelings, thoughts, etc.

4. Evaluation and/or Closure- This can be a pule, an appreciation, a summary or what happened, or a time for questions. This verbalizing is a very important part of the learning experience.

Notes

Assisting Personal Growth What is it that stops people from changing obviously self-defeating, non-productive and painful behavior? Here are some reasons:

- .They are accustomed to the behavior and don't recognize it as self-defeating.
- .They are rewarded, somehow, for the behavior.
- .They don't have a clear picture of how they are behaving.
- .They don't have any ideas on how to act differently.
- .They don't have any skill or practice in acting differently.
- .They don't have permission to act differently.
- .They aren't rewarded when they act differently.

By carefully examining the above reasons it is clear that an instructor in the Hawaii Bound experience can powerfully counter all these reasons and patterns. Immediately upon arriving,students sense that Hawaii Bound is a new "ball game" as far as behavior is concerned. Old negative patterns and roles are often invalidated and left unrewarded.

Feedback from peers, instructors, and the course experiences focuses attention on who we really are. The role models of peers and leaders and information from discussions provide powerful guides on how to act differently. Behavioral skills are provided in lessons on communication and intense group living. Finally, a supportive 'ohana and instructor provide permission and support for individuals wanting to change behavior.

The Hawaii Bound course provides a powerful environment for personal growth and change. Using all the tools at your command instructors can be potent helpers in the process.

Notes

GROUNDWORK

Identify individual and group needs early and begin building skills slowly and methodically so that more advanced experiences like ho'oponopono, solo debriefing, appreciations, and the final interview will be productive. For the 'ohana to be fully functioning Search and Rescue Team on the final expedition on the mountain they must have practice being a team earlier. An extremely quiet person needs practice saying a few words in structured discussions and at the mealtime pule to be able to participate effectively in more advanced group meetings.

Icebreakers and Welders The purpose of these activities is to help people get acquainted in a developing climate of trust and acceptance. They involve risk taking, physical contact, and cooperation.

Introductory Questions Introduce each other by having each person respond to specific questions.

.What are three adjectives that describe you?
.Name one thing you do well.
.What are two things you would like to learn while you are here?
.What is one thing you like about yourself?

Variation Using Metaphors If you had to use one of these words to describe how you are feeling right now, which one would be most appropriate?

.Bubbling Brook
.Calm Lake
.Swamp
.Flood

.Which is sharper, an arrow or a disappointment?
.What makes the best student, octopus, elephant, mosquito?
.What takes up more room, a hippopotamus or a laugh?

Name and Animal Game Ann Alpaca, Vivian Viper, Richard Rabbit, George Goose, etc. In a circle, each person thinks of an animal that begins with the same letter as their first initial. One person begins by saying their name and their animal. The second person in the circle says the name of the first person, then his/her own. And so on around the circle. As a variation use fruits, cars, or adjectives instead of animals.

Initiative Games

Trust Fall Have your 'ohana form two straight lines facing each other. With arms extended and wrists locked so that they form a bridge between the two lines. One person, standing on a platform about shoulder height, with back to the group, falls into the net of waiting arms. (Caution: falling from too high a place can cause whiplash and possibly other injuries.) The person falling backwards waits until the catchers are ready and falls backward as stiffly and straight as possible.

Circle of Hands Form a circle and have everyone first put their right arm into the circle and take hold of another persons hand. Then put their left hands into the circle and grab another hand. Be certain not to have one person holding two hands that belong to the same person. The task is to unwind and form a circle or a figure "8" without breaking anyone's

page 19 blank.

handhold. It takes cooperation. A time limit of 10 minutes is suggested.

People Platform Mark off a small area. Very small. The task is to get everyone in the group completely onto the area and to be able to stay there for a designated length of time (5 seconds). The smaller the area, the harder and funnier the task. Too small an area makes the task frustrating and/or impossible. You may not get the enthusiasm for doing it that you want if it seems impossible. Make up some absurd reason why the task must be accomplished. The Earth has turned into a big bag of poi and is sucking everything up.

Jungle Jim Jeopardy One person volunteers to be the victim. The rest of the group must get that person over the top of the jungle jim at Basecamp and off the other side safely. They have 10 minutes to accomplish the task. The volunteer can not do anything to help him/herself. Make sure you have some people spotting.

The Wall This task is to have every member of the 'ohana climb over the 14 foot wall within a time limit of 15 minutes. Do not allow time for practice or discussion. Teach spotting, explain the task, the rules, and let them begin.

Rules:

1. Climb smooth face only.
2. No grabbing on the sides.
3. Head must always be higher than feet.
4. Students reaching over the top of the wall from behind must be held in place by other students on the back side of the wall.
5. Once a student scales the wall he/she can not go out front to help (except to spot).

(Note: Instructors and students should always be spotting others on the wall).

COMMUNICATION SKILLS

Active Listening Active listening differs from passive listening in that instead of remaining silent when another person is talking about a concern, the listener periodically reflects back to the speaker in a few words his/her understanding of the speaker's message. Active listening often works like magic; when the speaker has a chance to voice his/her feelings, a problem may simply disappear. If it doesn't, it's a good step in the right direction toward solving the problem. Even when there is no problem, active listening promotes fuller communication.

There are several communication games that are productive to use with the 'ohana to teach active listening. To bring normal group conversational patterns to consciousness play "hooking on". In "hooking on" anyone begins a conversation and whenever the topic stimulates an idea or memory in anyone else the second person "hooks on" and takes the conversation off in a slightly new direction. Group members are encouraged to "hook on" as often as they can. This exercise usually ends in laughter after a few minutes because the conversation goes nowhere and students identify immediately with how closely this 'game' resembles normal conversations.

Follow "hooking on" with an exercise in careful active listening. Anyone begins a conversation and whoever wants to pick up the conversaional leadership must repeat in their own words the essence of what the first speaker said. They are then allowed to continue the conversation. It is important that the interpretation of the first speakers messages be confirmed by asking the first speaker if they accept the interpretation. If they don't they must repeat their message or the second speaker must re-interpret.

It is vital to all group processes that the members of the 'ohana know how to listen well and to be able to identify "hooking on" whenever it occurs.

"I" Messages An "I" message lets another person know in a non-judgmental way how you feel because of his/her behavior. "You're just plain lazy" is a "you" message. "I feel disappointed when you miss our meetings because I count on your advice" is an "I" message. An "I" message accurately reflects the effect of another's behavior on you. "I" messages leave the responsibility for altering behavior on the other person. An "I" message describes a feeling, a behavior, and a tangible effect.

Conflict Situation	"You" Message	"I" Message
You are upset when a student sits on a rock as you struggle to put up the tarp.	"Will you please get down here and help me for a change!"	"I want some help with this tarp and when I see you watching me I get angry inside."

Helpful Responses When listening to students talk about their feelings it's often better to make no commenting response at all than to risk blocking the communication. These are some responses which can be used to help keep conversation flowing and preserve the self-esteem of the speaker.

Silence - just be there, don't take over the focus
Non-commital acknowledgements - nod head, hold their hand.
Generalized comment - lets talk, I'd like to here about it, I'm interested.

Giving Feedback It is scary to give feedback. It takes guts and a lot of aloha. Feedback as we practice it a Hawaii Bound is one of the most desired and sought after interactions in life. It tells a person if they are appreciated, if they are loved, if they are winning, how they are appreciated, where their strengths and weaknesses lie. If you can keep that in mind when you are offering feedback, it will make the job much easier. Here are some ways to offer feedback and some tacks to avoid.

Focus on behavior
Use observations you have made for examples
Be specific
Provide information and suggest alternatives
Use language focusing on more or less of a quality
Talk about here and now (on the course)
Focus on what is valuable to the student
Tell about the effect of behaviors on you
Begin with positive comments and appreciations during interviews
Present problem areas as opportunities for change and growth

Don't indulge in judgments about people or behavior
Don't infer or guess about reasons behind behavior
Don't give advise or offer solutions
Don't question why, stay with behavior, not motives
Don't use language of absolutes like either/or, right/wrong
Avoid talking about there and then (off the course)

Thirty Clarifying Responses

1. Is this something you prize?
2. Are you glad about that?
3. How did you feel when that happened?
4. Have you felt this way for a long time?
5. Did you consider the alternatives?
6. Did you have to choose that; was it a free choice?
7. Was that something that you yourself selected or chose?
8. Did you do anything about that idea?
9. Can you give me some examples of that idea?
10. What do you mean by _____: can you define that word?
11. Where would that lead, what would be its consequences?
12. Would you really do that or are you just talking?
13. Are you saying that .....(repeat in some distorted way)?
14. Did you say that .....(repeat in some distorted way)?
15. Have you thought much about that notion?

16. What are some good things about that notion?
17. What do we have to assume for things to work out that way?
18. Is what you express consistent with ...(note something else the person has said or did that may point out an inconsistency).
19. What other possibilities are there?
20. Is that a personal preference or do you think most people should believe that?
21. How can I help you do something about you idea?
22. Is there a purpose back of this activity?
23. Is that very important to you?
24. How do you know it's right?
25. Do you do this often?
26. Would you like to tell others about your idea?
27. Do you have any reasons for saying (or doing) that?
28. Would you do the same thing over again?
29. Do you value that?
30. Do you think people will always believe that?

Kaukau Kaukau is a Hawaiian "reality check". Kaukau is telling-it-like-it-is. Kaukau means: this is how it looks to me or this is how things are.

In conducting a kaukau, an instructor takes a student aside for a talk. The talk is not moralizing, advising, or warning, but factually telling the student how you observe a situation. "I notice that we've been on the trail for 15 days and you've never helped with a meal.""The 'ohana is beginning to get irritated because you always walk ahead of them instead of with them." The information is what you want to pass on. The kaukau is done in a spirit of aloha and without accusing. After a kaukau allow time for the information to be absorbed. The student needs to think about what has taken place. Later you will want to go back and get a reaction from the student to the kaukau.

The kaukau is behavioral. It describes behavior and/or attitudes reflected by behaviors. That allows it to be a non-threatening but very directive experience. Both parties can remain non-emotional, almost detached, as if examining behavior from outside the group.

Notes

GROUP PROCEDURES

Leader, teacher, observer, reporter; these are the roles you have as a facilitator of group procedures in Hawaii Bound. As the facilitator of group procedures your communication skills, knowledge of your roles, and awareness of the structures are important. As the 'ohana learns to solve problems and upsets through structured group procedures everyone's course experience is enhanced.

Guidelines for Processing As facilitator of a group, the attitudes and behaviors you exhibit play a crucial role in the dynamics of the group. The following are some things to be aware of during processing sessions.

Self Awareness - Keep in touch with your feelings. Where is your energy? Don't try to facilitate a processing session if you are distraught over some personal upset; resolve it first. (The upset could be a charge with a student, it could be a headache.)

Attitude - The attitude that the leader exhibits sets the tone for the group. As a facilitator you should be alert, centered, show positive energy, keep your attention outward and remain flexible within the structure.

Acceptance - Allow everyone to be themselves. This requires listening, giving attention and being non-judgmental. It requires dealing with people in the present; where they are in their lives right now rather than where you would like them to be.

Focus - Be able to focus your attention and the groups attention on the person who is talking. Don't interrupt. Focusing lets the speaker know that he/she has your attention, your acceptance, your aloha.

Drawing Out - Help others to clarify and articulate their feelings, thoughts ideas, values. Ask questions. It is often helpful to let a person hear back something they have said.

Posture - Watch your posture and your body language. If you are slouched, closed, outside, your 'ohana will respond to that. Students tend to mirror the instructor.

Physical Surroundings - Make certain that the physical surroundings are condusive to processing. Is it a place you will be comfortable in for an hour or more? A circle is generally the best formation for a group.

Energy Levels - Is everyone going to be able to stay awake? Can they put out the aloha that everyone needs?

Timing - Conduct processing meetings immediately after major events like the rappel and solo. Don't wait for a few hours or days, much of content and feelings will dissipate.

Appreciations An appreciation is an "I" statement which states a positive value for someone, someplace or something. It is stated in the first person with each speaker taking responsibility for his/her feelings. An

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appreciation is directed at the receiver by naming the subject of appreciation in the second person. "I appreciate you, Nalani". It describes a behavior or a quality. "I appreciate you, Nalani because you are so helpful." When there is a specific experience related to the appreciation, it should be added. "I appreciated you, Nalani because you helped me carry my pack up the trail when I was so tired."

Appreciations are a valuable tool for groups. They greatly enhance self-esteem through positive feedback. They aid in the development of the group by providing a time for group members to acknowledge one another. Appreciations provide an opportunity for self expression and public acknowledgement. They lead adolescents to be more "other" oriented and involved in society.

Appreciations are carried out in a structured setting. Sitting in a circle, each person takes a turn expressing his/her appreciation for every other member of the group. A self-appreciation and an appreciation of the group as a whole may be added at the end of each person's turn. By going in order around the circle, nobody will be accidently passed over or forgotten and there will be no unspoken rank order of appreciations.

Ho'oponopono Definitions

Aumakua - family god often represented by a living creature or plant

Hala - fault, transgression

Hihia - entangled, enmeshed, caught up in

Ho'omalu - shelter, protect, to keep quiet, a silent period

Ho'oponopono - to set right, to make right, to restore good relations within the family

Kahuna - priest

Kala - to release, to untie, unbind

Kukulu Kumuhana - (1) a statement of the problem that confronts the 'ohana, used to initiate ho'oponopono, and (2) pooling of strength (mana) to give or send emotional, psychological, or spiritual energy to someone.

Mahiki - to peel off, to pry off

Mihi - repentence, confession, apology, forgiveness

Mo ka piko - sever the umbilical cord, symbolically. cut off an 'ohana member

'Ohana - family (blood ties, but more recently a very close grouping)

Oia 'i'o - absolute truth, spirit of truth

Pule wehe - opening prayer

Pule ho-opau - closing prayer

Ho'oponopono - Ho'oponopono is an ancient Hawaiian method of solving family and personal problems. It is based on the need for everyone in the 'ohana to work together to aid in each others health. Aloha is the spirit that ties an 'ohana together and it is that underlying compassion that sets the tone for ho'oponopono.

Five conditions must be understood by 'ohana members before ho'oponopono can begin.

1. Each individual in the 'ohana must share a common committment to be part of the problem solving process.

2. All words and deeds that are part of a ho'oponopono will be shared in an atmosphere of oia 'i'o, the very spirit of truth.

3. The 'ohana must share a common sense of aloha for one another or be committed to reinstating that spirit.

4. Everything that is said during ho'oponopono is done in confidence and will not be repeated when the session is complete.

5. The haku (leader) must be commonly agreed on as a fair and impartial channel through which the ho'oponopono is done.

Ho'oponopono begins with a pule wehe (opening prayer) as a way of asking for spiritual guidance. It is usually addressed to an 'aumakua and the god or gods to ask for strength and clarity from the spirit that surrounds us.

After the pule, the haku (leader) makes a statement of the problem or situation needing attention. This is a clear and objective statement that sets the stage of ho'oponopono and is called kukulu kumuhana.

From here the process begins of untangling emotions one at a time in search of the hala or transgression. This tangling of emotions or hihia is a reaction to the hala and includes all the thoughts and deeds that follow as a result of an original transgression. This time is called mahiki when the 'ohana talks about what has happened, taking into account each person's feelings and reactions to a specific action.

The haku, through mahiki, deals with one problem at a time, tracing it from start to finish where it is put to right. Like peeling an onion, each layer of the problem is separate and must be cleared before the next layer is approached. Mahiki is the disposing of one layer of action, motivation or emotion to reveal and dispose another layer of acts and feelings. As the 'ohana is able to understand the situation through mahiki and the identification of hala and hihia the next step is mihi or forgiveness.

Forgiveness is an obligation in ho'oponopono and must be arrived at to complete the process. Offenders must be willing to seek forgiveness for their thoughts and deeds while the offended must be able to truthfully forgive. If this point cannot be reached in an atmosphere of honesty ho'oponopono must continue until it can. This is where a common commitment to be part of a solution is most important and where the 'ohana must

focus its energy to encourage mutual forgiveness for the sake of its continued health.

If a person is unable to release himself and others from the hala or any part of the tangled emotion, he/she is said to be ho'omauhala, to be holding a grudge. When this cannot be overcome simply, a period of silence for thought and reflection is asked for by the haku. This is called ho'omalu and is designed to cool down emotions and to look inwardly for strength and perspective. The haku might also wish to invoke the process of kukulu kumuhana in which the entire 'ohana focuses prayer and aloha on the individual in the group who is in need of help and perspective to handle forgiveness. Both ho'omalu and kukulu kumuhana are tools for dealing with high levels of emotion and for invoking a sense of group responsibility for calming them. Another commonly used method involves the channeling of all discussion through the haku to partially disarm personal comments and individual reactions to them.

Once a point of forgiveness has been reached by the individuals involved in the original hala the next step is called kala, to release, to untie, to free each other completely. This is a mutual process and requires an honest unbinding of the individuals involved from the wrong that bound them. Mihi makes for kala and when kala is done mihi is completed. It is important to stress though that there is no kala until there has been a complete severing of the wrongs and the personal conflicts between the individuals involved. A deep sense of resolution is not possible until these ties have been clearly severed.

Ho'oponopono ends in resolution or else it is not complete. It may go on for hours or perhaps over a period of days but resolution is essential. This does not mean though that all problems have amiable solutions. There is an option in ho'oponopono called mo ka piko, literally to sever the umbilical cord, that is used only in extreme cases. For instance if an individual flatly refuses to participate in the problem solving process or to embrace the 'ohana with any sense of aloha he/she may be cut off by the group and if restitution is not made they may be subsequently asked to leave the 'ohana for good.

A successful ho'oponopono will end with a drained yet united and uplifted 'ohana. The process is put to rest with a pule ho'opau (closing prayer) which gives thanks for guidance and asks for continued support. Often when it is appropriate there might also be an exchange of small gifts between those who have been bound and now released by their emotions to symbolize the act of forgiveness.

Ho'oponopono was an integral product of the ancient 'ohana system. It must be carried out with a common understanding and commitment to the family in which subsistance and support were so essential. This implies that an instructor must focus on developing a sense of 'ohana first, before ho'oponopono can be effective. Without that common commitment there can be no sense of resolution for difficult problems.

Do not attempt to lead a ho'oponopono if you are hihia. Find someone else to lead who is not personally involved. The experience of problem solving through ho'oponopono is an important part of the legacy the Hawaii Bound experience offers. Practice it several times during the course so that students are comfortable with the process when the need arises.

Ho'oponopono is called by the instructor but may be initiated by 'ohana request. Everyone must be there to take part and the setting should be uncomplicated and conducive to resolution, not interruption.

Notes

Interviews A personal interview is held with each student at least two times during a course. It is intended to provide a positive experience for the student. By focusing on outstanding positive characteristics, appreciating behaviors and attitudes, acknowledging the qualities which make each person special, the interview becomes a time of lasting positive impact and personal growth. Behaviors and attitudes which are seen by the instructor as a place for change should be presented to the student at this time too, in a positive manner. ("I would like to acknowledge you for all the help you have given the 'ohana. You carry a heavy pack, every night you've helped set up the tarps. More than once you've dug the lua. I've also noticed that you've not been involved with helping with meals. That may be something you'd like to think about. Mahalo for your help.")

The interview has three additional purposes. First, it gives the student the opportunity to tell the instructor how the student is doing on the course. There may be something he/she has been waiting until the right time to talk about with you. Second, it is a time to share observations you have made by means of feedback and to find out any information you might want or need from the student. Third, the interview supplies you with material needed for writing student reports. The final interview is, in fact, a verbal account of the student report.

The behavior check list has been designed to help you conduct student interviews and to write student reports. Using it as a guide will help you to observe and note behavioral and attitudinal traits and changes. The behavior checklist is developed directly from the course goals. The course goals are more inclusive however, and should also be consulted before interviews.

The questions and comments you make should be direct. "I notice that you are on the edge of the group most of the time." "How can I help you to feel more a part of the group?" "I want to know how you feel about being a part of this 'ohana." Don't be afraid to say what you think and see. If you say it in a positive way, your feedback will be accepted and appreciated. Remember that everyone needs feedback and most people are looking for it.

INTERNAL COURSE REVIEW

You have a written course plan with numerous objectives, stated and understood. To keep track of your progress and that of the 'ohana during the course review occasionally. Here are some specific ways to conduct meaningful reviews:

Inspect student skills. Inspect the tarps one evening, or how packs and equipment are cared for overnight. Are proper knots and methods being employed? If its done well this is one measure of students skill level. If not, teach it again.

Observe group organization skills. Sit back one evening or morning and observe how the 'ohana organizes itself without direction. are the same people always the ones to cook and clean up? Are some students always outside the group when work is to be accomplished?

Keep a personal checklist and count things. Count the number of kaukau you give each course. Count the number of ho'oponopono you give each course. Count the times you pass on Hawaiiana information each day. Keep a tally for the course. Count the number of one-on-one conversations you have each day. This self monitoring can be very enlightening about how you spend your time and energy.

Inspect your plan. Each night it is sound practice to inspect your plan to review the day and mentally plan for tomorrow. Check items off on a list as you complete them.

Notes

THE SAFETY PROGRAM

Hawaii Bound School courses and support activities will be conducted safely in accordance with provisions of this Safety Program. This Safety Program is designed to reduce the risk of accident, avoid injuries when accidents occur, and to develop safety consciousness in students and personnel. The Safety Program is both rules and procedures to avoid hazardous situations and education about the dynamics of accidents so that prevenion occurs.

The Safety Program is composed of these elements:

Understanding the dynamics of accidents

Knowledge of environmental, human, and equipment hazards.

Safety instruction and supervision by instructors

Employment of emergency procedures when necessary

- search and rescue
- evacuation procedures
- notification plan

Dynamics of Accidents

A simple view of an accident is the combination of a hazard or a hazardous situation with a human factor or factors.

$$\text{HAZARD} + \begin{matrix}\text{HUMAN} \\ \text{FACTOR}\end{matrix} = \text{ACCIDENT}$$

To avoid an accident, the hazard and the human factor must not combine. This is admittedly a simplified view, but it works to stop accidents.

Let's examine this model closer with outdoor adventure activities in mind. Suppose a truck has developed a faulty tail gate latch and it must be used in transporting students before a repair can be arranged. This is a hazard-out situation. Can something be done to eliminate the hazard? Use a different vehicle? Seal the tail gate? If not, the driver and the instructor must be sure a human factor in the equation does not combine with the real hazard to cause an accident. The human factor could be lack of awareness that the tail gate doesn't work, or lack of respect for the hazard for a number of reasons. A verbal warning, or a sign, or a rope, or all three of these could alert people to avoid an accident. Failing this, the risk of an accident occurring is unacceptably high.

Imagine hiking the Kohala Ditch Trail with your 'ohana. The group is tired and stops for lunch along the trail. During lunch a rock falls from above and smashes a student's head. What can be done to avoid this type of accident? One, determine that rock fall is too capricious a risk and stay off the trail. Two, lunch in areas where rocks don't fall to reduce the time you are exposed to a hazard. Three , train students to listen for rock fall and to take precautionary measures to avoid the rock.

In Hawaii Bound we continually operate in areas where the risk of

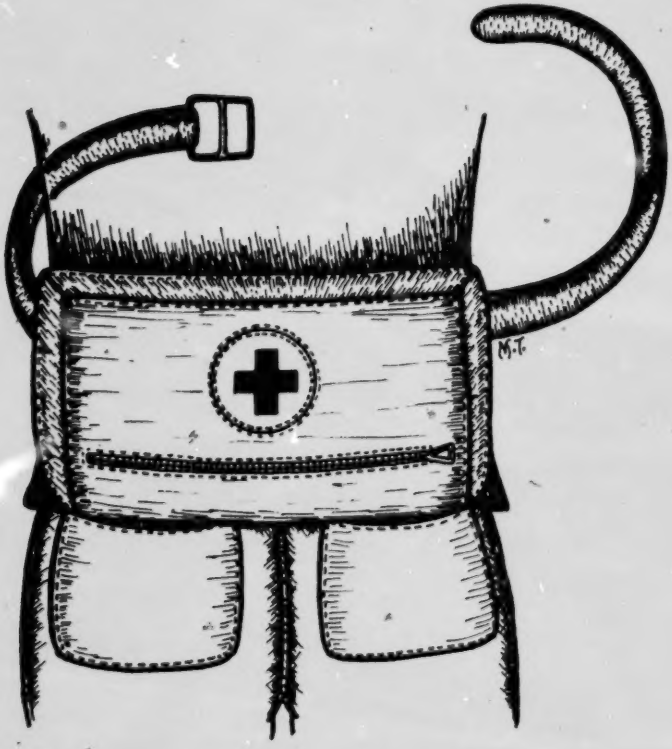
accident from natural phenomenon is higher, at least, than a picnic in Kapiolani Park. We must train ourselves and our students how to control and reduce exposure to risk and hazard. This is done by:

1. AVOIDING OR CORRECTING HAZARDS

2. CORRECTING THE HUMAN FACTORS THAT ARE HAZARDOUS

3. TAKE STEPS TO AVOID THE COMBINING OF THESE TWO ELEMENTS

A further word about accidents. An accident is an unplanned occurance. It may or may not result in injury. An accident without injury is what we lightly refer to as a "close-call". To help us all learn from accidents you should report all accidents, both those that result in injury and those "close-calls" that do not. This way we can be aware of how often, and in what environments, and in what ways we are exposed to risk or injury.



Environmental Hazards (this is a checklist)

Kohala Mountains

rockfall
high water in rivers
narrow, slippery, crumbly trails
steep dropoffs
continuous rainy weather
rip currents and tides
shallow rooted trees
wild animals (pigs, dogs, cattle)
water born disease
tree-fall
fern overgrowth on trail edges
fumerols
tsunami

Ka'u Desert

extreme dryness
extreme exposure to sun, reflection
hot air temperatures
unpotable water
severe rip currents along coast
rock fall in caves
tsunami
lack of water sources
earthquake
eruption
fumes, gases, steam
ground cracks and fissures
very thin crusted lava
high, gusty winds

Mauna Loa

extreme dryness
high winds
snow storms
high altitude
a'a lava
brilliant sun and glare
lava tubes, weak crust
very cold nights
weak ledges at crater edges
lack of visual contrast at night to see pit craters and holes
earthquake
volcanic eruption
lack of water sources

Ocean

deep water
wave action
extreme exposure to sun and reflected rays
kiawe thorns
wana, coral, moray, shark
gusty wind, shifting wind, off-shore gusts
rip tides and currents
strong prevailing currents

Highways

poor driving conditions, high winds, rains
narrow winding roads
extremely rocky jeep trails
animals on highway
pedestrians
large oversized vehicles (Army, buses)
other drivers

Human Factor Hazards

Instructors

- lack of knowledge of environmental hazards
- inadequate skills to extricate self and others from hazardous situations
- poor judgment regarding safety
- poor teacher of necessary skills and information
- leadership poor and ineffective
- instructions unclear or confusing
- displays "ostrich syndrome" with student misbehavior
- ineffectual under stress
- poor supervisor, does not correct problems
- personal fears exacerbate stressful situation

Students

- no skills to avoid hazards
- no awareness of hazards
- resistance to directions or instructions
- irresponsible, careless attitude toward self, equipment, others
- disrespectful attitude toward self
- adolescent lack of experience and need to test self
- act erratic under stress
- inordinate need to show off and take risks
- poor physical stamina or strength
- inability to withstand group pressure or lack of responsibility
- excessive fears

'Ohana

- group not yet formed, individual roles not yet sorted out
- interpersonal frictions left unacknowledged and unresolved
- no group committment or sense of mutual identity and trust
- poor communication patterns
- excessive competition
- scapegoating and lack of concern for slow or different individuals
- outright hostility toward some individual(s)
- excessive pressure and stress to perform
- no practice in working harmoniously under stress
- lack of leadership within 'ohana

Drivers

- poorly trained driver
- rushing to meet schedule
- overly tired on long drives
- not driving defensively

Equipment and Other Hazards

- stoves, fuel, pressure cooker
- improper clothing
- faulty equipment
- inoperative equipment
- spears
- machete
- trailer with canoes
- truck tailgates
- pakalolo farmers
- hunters
- brush or forest fires

SAFETY TRAINING

As a positive measure to reduce hazards and eliminate accidents specific training in safety will be given to all students and personnel. This training will include these elements:

Safety rules
Environmental briefings
First Aid training
Emergency plan

Safety Rules These safety rules are for everyones protection and all personnel and students must abide by them. These rules must be read to students during the course briefing and again during the appropriate environmental briefing.

No one will use alcohol or illicit drugs during the course.

When traveling in the trucks everyone will be inside the vehicle and seated. No one may sit on the edge of the pick-up box or lean against the tailgate.

Vehicles will be driven safely and within legal limits at all times.

The instructor will give an environmental briefing just before the 'ohana enters the Kohala Mountains, Mauna Loa, the Ka'u Desert, the Ocean environment on the Kona Coast, and just prior to a rappel, the solo, any independent, student-led expedition, or vehicle travel on the highway.

A supervised swimming test will be given to all students at the first opportunity near safe water to assess swimming ability.

No one may swim alone; utilize the buddy system. Your buddy may be on the beach, but his attention must be on the swimmer in the water.

Everyone will wear a life jacket in the proper manner while canoeing.

The canoes must be equipped with the emergency equipment, a bailer, and the radio beacon when on the ocean.

No one, at any time, may travel above 10,000 feet elevation alone regardless of the circumstances. On Mauna Loa this means the area above the Observatory on the North Slope and above Red Hill on the east/south slope.

No one, at any time, may travel cross-country in the Ka'u Desert environment along regardless of circumstances. This area is generally defined as within the Hawaii Volcanoes National Park, excluding Mauna Loa.

Every student will be checked each day during solo and must give a visual and oral response to the instructor.

No violent behavior toward others or property.

The following is not a safety rule but is a school rule governing behavior. It is included here so it will be included in the course briefing.

Sexual contacts are forbidden during the course.

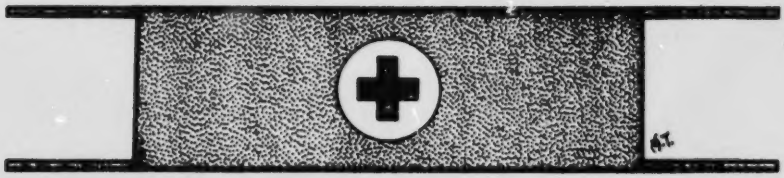
Environmental Briefings The following are required briefings. Page numbers refer to the manual page where the complete text of the briefing is written:

Kohala Mountains	Page 99
Mauna Loa	Page 109
Ka'u Desert	Page 115
Ocean	Page 122
Rappel	Page 5[illegible]
Solo	Page 52
Independent expedition	Page 54
Highway travel	Page 135

First Aid Training Curriculum The following lessons are required training for all students. Times are suggested as appropriate. Course plans should list every lesson specifically to assure all are included. At least two simulated accidents must be staged during the course plus a simulated search and rescue exercise prior to solo. First aid training should focus on prevention, treatment, and building an effective Search and Rescue team.

Lessons

Contents and utilization of First Aid Kit (day 1 or 2)
Blister prevention and treatment (day 1)
Use of Accident Report form (day 1 or 2)
The dynamics of accidents (day 1 or 2)
Emergency Plan (day 1 or 2)
Personal and camp hygiene (cooking, water care, lua)(day 1)
Use of buddy system in all water environments
Stream crossing techniques
Artificial (mouth-to-mouth) resuscitation
Bleeding injuries treatment
Sprain and fracture treatment
Evacuation and transportation skills and procedures
Hypothermia
Treatment of shock
Heat stroke (prior to mountain and/or desert)
Heat exhaustion (prior to mountain and/or desert)
Snow blindness (prior to mountain)
Search and rescue (prior to solo)
Non-swimming water rescues
Acute altitude sickness (prior to mountain)



Emergency Plan Despite precautions an accident may occur that requires medical attention. The instructors and students must organize efforts to find the lost, care for the injured, evacuate to help or bring help to evacuate, and provide information to medical personnel that may be helpful in treatment. If any of these situations occur follow these steps:

Lost person When you suspect someone is lost immediately initiate a First Degree Search.

If unsuccessful, initiate a Second Degree Search.

If unsuccessful, continue the Second Degree Search, notify Basecamp, and if in the National Park, also notify a Ranger. Care for the safety of your group and assist continuing search efforts as much as possible.

Responsibility for continued search will be taken over by the Course Director or Program Director when they arrive or by Park Rangers or Fire Department Rescue Squad personnel.

Overdue expedition group Arrange rendezvous times at mid-day or earlier. Notify Basecamp and Park Rangers (if in Park) as soon as possible about a tardy group, but delay any search until mid-morning of the following day.

If weather has been severe, notify Basecamp about any overdue group so a search can be organized immediately.

Injured person needing evacuation Send three (3) persons out by fastest route to notify Basecamp of accident and have Basecamp arrange evacuation transport. Information needed:

Name of injured
Injuries (type, how, when)
First aid treatment (when)
What kind of transport needed
helicopter
stokes litter
Where should rendezvous occur for evacuation of injured person.

Notification Plan In accidents resulting in serious injury or death, a notification plan will be activated by the Executive Director, Program Director, or Course Director. Your communications should be to and through these people. Give complete and thorough information.

Wait with your group until investigative authorities arrive. If the press arrives tell them they can get information through the Basecamp. If the press is aggressive give them facts without any indication of responsibility or blame. Ask that names be withheld until family is notified. Be courteous and factual. Keep your 'ohana in relative isolation until Hawaii Bound or police personnel arrive. They will want statements and are trained to be sensitive to you and your student's feelings. Let the Program or Executive Director deal with notification of media.

Field Reports Three types of field reports are designed to record and communicate incidents and information from the field to the Basecamp. Forms are in the first aid kit and are to be picked up the Course Director periodically during a course or on resupplies.

Accident Reports (yellow)

In the case of any personal injury, fill this out completely to facilitate any medical or insurance follow up.

When a student becomes too ill to participate in 'ohana activities, pulled muscles, altitude sickness, etc.

Record all near misses, i.e. rockfalls, exhausted swimmer.

Field Information Reports (blue)

Record helpful information, i.e. new landslides, damaged cabins, people who were helpful on the trail, resource people you meet.

Baggage Tags

Attach baggage tags to broken equipment with description of needed repair.

We are a small school but our operations are fairly complex. Communication is as vital to our functioning as electricity is to a computer. To feed information into our system so it is received, acknowledged, and useful WRITE IT DOWN and address it to someone. Date your notes and sign them.

Rumor Control The Executive Director is rumor control. Ask any questions for immediate and definitive answers. Use this resource anytime you want, it is a valuable tool for clear communications.

COURSE CURRICULUM

These are the required experiences and training activities that comprise the course curriculum.

Briefings Each student will receive these briefings.

An introductory course briefing by the Course Director or Program Director upon arriving for the course.

All the environmental and safety briefings required by the Safety Program.

Training and Experience Each student will be trained and be involved in experiences to learn:

to live and travel comfortably in four wilderness environments

wilderness emergency care and to be part of a Search and Rescue team

to keep a personal journal

how to participate in group discussions and ho'oponopono

an appreciation of the cultural, geological, historical, and curtural heritage of Hawaii

Special Experiences Each student will be involved in.

service projects

a solo experience of three days duration

a rappel

lei making

Evaluation Each student will receive:

two personal interviews by the instructor

a course debriefing by the Course Director or Program Director

a written course report

page 43 blank.

COURSE BRIEFING

The course briefing is presented by the Director, Program Director, or Course Director immediately after the group's arrival on the Big Island. The course briefing includes these items.

A welcome on behalf of the school's staff.

A review of the history and purpose of Hawaii Bound

A review of the course goals.

A statement covering the reasons why Hawaii Bound programs take place in the wilderness.

A statement that reassures students of the instructor's qualifications.

A general outline of the course plan that includes the sequence of environments and resupplies.

A statement reassuring students that we do not engage in surprise activities on the course.

A statement that we intend that they will learn many skills and knowledge about the wilderness.

A recitation and explanation of all the school rules.

A description of the Hawaii Bound Safety Program and the emphasis on thinking "safety" at all times.

A statement noting the permissions we must secure to cross private lands and the value we place on environmental care.

An explanation of the task of deciding on their 'ohana name.

Wishes for success, aloha, adventure, learning and safety.

FIRST AID TRAINING

The entire required curriculum is listed in the Safety Training section of this manual on Page .

Search and Rescue Because Search techniques are not treated in the First Aid book carried in the medical kit they are described here.

First Degree Search When a person is suspected lost, organize a First Degree Search. This is a quickly organized rapid search of all obvious places for the person, calling their name out loudly. Directions for searching are given by the leader and a specific time limit is set for searching. Example: At Red Hill the 'ohana members would quickly be assigned to search in the cabin, around the cabin, in the lua, along the puu rim circling the cabin, and out a short distance along the two trails leading into the puu. Ten minutes would be sufficient time to search this area.

Second Degree Search Once the entire 'ohana is gathered the leader reconstructs the 'ohana's activities until it is clearly determined where and when the lost person was last known to be with the group or part of the group. This parameter is an obvious point to initiate further search activities.

A highly organized search is now mounted to locate the lost party. There should be an atmosphere of urgency but not haste or carelessness. Organize the 'ohana into teams of two and three persons and assign specific places for searching. Cover all the areas previously covered in the First Degree Search and expand the search to new areas where (a) the person was last seen and (b) new areas they may have explored based on knowing the individuals personality and habits.

During the Second Class Search the members of the search teams should be properly clothed and equipped to maintain themselves comfortably in the environment for several hours. Carrying water and whistles is important. A headquarters is established to which groups report upon completion of their assignment. Given daylight and energy they can then be reassigned.

A time limit is established for each search group and noted in a log of the search procedures. If the Second Degree Search is unproductive over a reasonable time span, notify Basecamp and follow procedures outlined in the Lost Person section.

Third Degree Search A Third Degree Search is initiated when substantial efforts in the Second Degree Search are unproductive. The assumption in a Third Degree Search is that searchers are trying to locate a severely injured, perhaps unconscious person, or after several days, a body.

This search is conducted in areas believe to be most fruitful of success. Searchers walk across the terrain in a straight line moving parallel to each other at a distance close enough so they can see searchers on either side and talk to them in a normal voice. Search leaders will organize the movement of searchers so that all areas on a map are covered section by section. Searchers look into every crevice, lava tube, under every log and move slow enough to be absolutely sure they have not missed an opportunity to locate an unconscious person.

SERVICE PROJECTS

In all environments and at all times Hawaii Bound 'ohana should maintain a sense of stewardship for the aina. It is an instructor's responsibility to identify times and places where this can be taught in each environment. Ongoing projects are listed with each environment but daily vigilance is important to take advantage of service opportunities. Trail maintenance in the Kohala Mountains is particularly important for the preservation of unmaintained trails and our continued access there. Service projects are a lesson in "malama ka aina", caring for the land, and are an important part of a legacy we need to leave with students.

Our training in First Aid is a preparedness for service to others and should also be taught with this awareness in mind.

Notes

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SANITATION

Water Purification Clorox is carried in each First Aid Kit and is used to purify questionable water. Put 3 drops in a full quart canteen. Shake and let stand open for 15-20 minutes before use.

Stream waters in Waipio and Waimanu are not safe and must be treated or boiled before use. Treat agitated (muddy or unclear) water in the north Kohala area. On Mauna Loa all surface collected water ought to be treated. Cabin water in the Park that is unchlorinated should be treated before use.

Utensils Cooking pots and utensils should be thoroughly washed with soap and rinsed after use. A common dipping cup for serving out of the common pot should be used. The cleaning of individual cups and spoons should be accomplished individually and not in a common pan. Avoid mixing or sharing eating utensils.

Personal Hygiene During the first week inspect students feet regularly and teach them how to care for blisters. Periodically check the feet of students you know are negligent in self-care. Stress the importance of a clean body and clean clothes.

Latrines and Catholes Latrine and cathole procedures should be discussed early so everyone will know how to use the lua. Do not take any steps for granted. Each 'ohana is supplied with toilet paper, a small trowel and matches for burning used paper on Mauna Loa and at the Ocean.

In the campsite a group latrine is suggested. A trench 12"-18" deep, 18" long and 6" wide is sufficient. Cover individual waste after every use. Before leaving camp cover in the remainder of the lua and repair the scar. On the trail use an 8"-12" cathole well away from potential water drainage. Particular care needs to be taken on Mauna Loa where N.P.S. facilities are not used. Paper must be burned and placement done with discretion.

A portable, chemically treated lua is carried on the ocean, and paper must again be burned. This is an important part of our ability to maintain access to remote beaches. A daily flush done from a canoe several hundred meters off shore is a simple and clean enough chore. It minimizes our pollutive effect as much as possible.

KNOTS

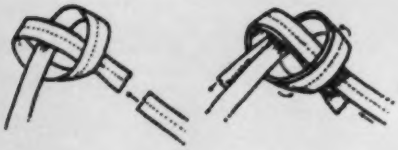
Teach students these knots, all of which have specific uses on the course.

Overhand Knot

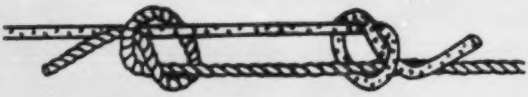
Bowline

A non-slipping, non-tightening knot with loop, easy to tie, easy to untie. Secures lines to tarps.

Water Knot

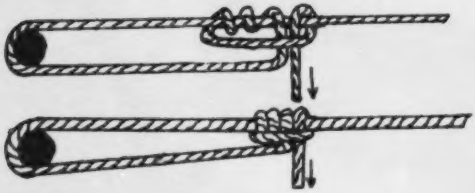


Fisherman's Knot



Ties two rope ends of equal or unequal diameter together.

Rolling Hitch Knot



Secures tarp lines to trees and rocks; adjustable.

JOURNALS

Hawaii Bound provides each student with a journal that is intended for use as a personal record of experiences. The journal includes a number of printed quotations that underscore Hawaii Bound's objectives and purpose.

Encourage and teach students to use the journal to record their impressions, insights and appreciations. Set aside time to make entries and encourage creativity. For one student, this may be poetry; for another drawings; for still another the journal may be a collection of pressed leaves or dried limu. Model the use of journals by keeping your own and sharing some of your entries with the ohana. Encourage students to share some of their entries with family and friends after they return from the course.

Have students write in their journals during quiet time (solo, waiting for resupply, while dinner is being cooked, etc.) Give them specific tools and structures for thinking, observing and writing. for example:

1. Each day, write one paragraph each on where you went, what you did and what you appreciated most.

2. Each night, draw the phase of the moon.

3. Write down the three characteristics you like most about yourself and three characteristics you want to change.

4. Write down what lessons you learn at Hawaii Bound that you want to remember for use later.

5. Describe in two paragraphs how the group <u>is</u> and how you would like it to be.

6. Write or draw a self-description that you would be willing to share with the rest of the group.

7. Write down your dreams from the night before.

8. Write a short poem about each environment you travel through that highlights its outstanding qualities.

Notes

SOLO

The solo experience is often a highlight of the course. It is such an important element of the course you should plan everything associated with it exceedingly well. There are four components:

1. anticipatory group discussions
2. solo briefing
3. solo
4. solo debriefing

The solo is such a novel experience that questions about it begin long before the course begins. Thoughts about solo evoke emotions from joy to dread. Begin preparing students for solo earlier in the course in a structured group discussion. This is the time to begin answering specific questions, but more than that, it is a good way for students to learn that everyone has different expectations and feelings about solo.

Here are some questions to ask in a group meeting.

How many here have slept out in the woods alone before?
Who has a bedroom all to themself at home?
How many of you have been all alone for 3 days and nights?
How many of you can never remember being alone?
How many have ever been afraid when alone?
How many have ever been afraid in the dark?
How many of you have gone without food for one day?
Two days?
Three days?
How many of you have done nothing for an entire day before?
How many of you are looking forward to solo?
How many of you don't want to do solo?

This line of questioning leads to asking each student what they are looking forward to or dreading. More creative questions can follow like these.

What do you think you will do on solo?
What will you think about on solo?
Do you have a plan for solo?
What do you think you will get out of solo?

Solo Briefing (Required presentation)

1. Explain exactly how long solo is to last; when it will start, when it will end.

2. Explain how solo will end. Instructor will come by so wait; or, come into the instructors camp after dawn. Be explicit.

3. Explain that safety requires everyone to remain within a 100 yard radius of their solo site.

   a. possibility of getting lost because of disorientation, lack of food.
   b. could get injured far from the site
   c. don't want students interrupting others on solo
   d. if they are missing from their site a "search and rescue" will be called bringing everyone else off solo.

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4. Explain the purposes of solo

   a. time away from the 'ohana
   b. time absolutely alone for introspection, self-discovery, a test of self-discipline, a time to rest, a time of reevaluation of the course and life, a time to do nothing, a time to live in absolute harmony and at the mercy of natures rhythms, a time to explore minute details about the aina instead of covering large distances, a time to cleanse and rest the body.

5. Explain what equipment they may take. Sleeping bag, liner, poncho, groundcloth, canteens, cup, string, clothes they can wear, journal. They may not take food, flashlight, books, cameras, watches, or backpacks. Note: Junior students are provided with food for three meals daily. This is not optional, juniors receive food and should not be encouraged to fast or be made to feel less challenged because they have food.

6. Explain that any student may return to the instructors site in an emergency. Explain that they will be taken back out again once helped.

7. Explain that the instructor will be by daily to resupply water, juice, and food if a junior course, and the student must be seen and speak to the instructor on each visit. Speaking can be minimal; perhaps an "aloha", but the instructor needs to know each student is responsive and coherent.

8. Explain the hazards of the environment as listed in the Safety section on page 36.

9. Answer questions.

10. Add any readings or personal comments you wish, perhaps close with a pule.

Solo Debriefing Before moving away from your solo camp conduct a debriefing. It may be helpful to structure it at the beginning with questions:

Did any of you write in your journals?
Did any of you see an animal?
Did any of you stay awake all night?
Did anyone get hungry?

Build involvement so individuals have everyone's attention to relate some of their experience. Perhaps ask each person to relate the most beautiful experience; the most frightening experience. Ask if someone has some journal material to share. Allow this meeting ample time and keep it focused and not verbal free-for-all. End it while there is still some desire to continue talking. This is a good meeting to end with summarizing what people say they learned.

STUDENT EXPEDITIONS

Independent student expeditions are designed to test a variety of group skills and resources. They are conducted without the instructor being present. Camp skills, route finding, safety and group problem solving are of particular importance here and must be well taught before they can be effectively tested.

The 'ohana is generally divided into 2 groups with not less than 4 students each. Each group is then given a route finding problem to last 2 days and one night. The expedition is designed by the instructor to test a variety of skills with a degree of difficulty that creates a significant challenge.

Expedition Briefing The following briefing must be given prior to an independent expedition.

1. Repeat the environmental hazards for the pertinent environment listed in the safety section on page 36.

2. Instill a safety consciousness that demands staying together as a primary rule.

3. Describe emergency procedures as they relate to the Emergency Plan, stressing our procedures for lost or overdue groups.

4. Nobody travels alone in the desert.

5. Notify students of instructor's plans while they are on expedition in case emergency contact is necessary.

6. Emphasize low impact on the ecosystem and on other campers.

7. Set a specific rendezvous place and time early enough in the day to mobilize a search should the group not appear.

8. Make sure that each group is carrying its own first aid kit.

9. Reemphasize heat stroke and heat exhaustion, prevention, symptoms, and cures.

RAPPEL

The rappel has proven to be an exciting and productive experience so it is included in our curriculum. The rappel experience has three elements: the rappel briefing, the experience, the processing of the experience.

Rappel Briefing (Required Presentation)

1. Upon reaching the rappel site explain that there are dangers associated with rappelling and with the site, but this careful briefing should eliminate them.

2. Discuss the equipment used, passing around each piece for inspection.

   a. goldline, a continuous nylon filament rope of 4,000 lbs. tensile strength.
   b. nylon webbing 4,000 lbs. strength
   c. locking carabiner
   d. figure "8" descender
   e. hard hats

3. Explain what is going to happen

   a. learn knots
   b. make slings
   c. demonstration
   d. rappel once
   e. option to swim afterward
   f. debriefing later

4. Explain hazards and safety measures

   a. falling rock/yell rock, wear helmet
   b. possible rope burn/wear glove and shirt
   c. shirt or hair getting caught in descender/tuck shirt and long hair in
   d. possible fall/everyone has a belay line on
   e. distracting belayer/everyone stay away from actual rappel spot
   e. falling objects/stay away from bottom of rappel site after finishing

5. Questions

Rappel Debriefing Hold an 'ohana discussion immediately after the rappel so as not to lose the impact of the experience. Topics for fruitful questions and discussions are fear, excitement, challenge, personal limits.

MAP AND COMPASS

Spacial awareness is vital in wilderness travel. The independent expedition in the Ka'u area relies on students knowing how to navigate overland for their safety and success. Students should master these skills. This is an area where repeated teaching and correcting is usually necessary. As a minimum students should be taught these concepts:

Know how to find the group's current elevation at any time from the topographical map.

Know how to tell a ridge from a valley.

Be able to accurately estimate waterfall heights, pali elevations, distance traveled on the trail from point to point.

Be able to interpret from the map what kinds of terrain will be encountered ahead.

Know the difference between true and magnetic north.

How to orient the map to the correct orientation on the ground.

Be able to locate self through triangulation in open country.

Be able to coordinate the map and compass so as to walk cross-country to a predetermined destination.

FOOD

Eating and food preparation is a major activity and preoccupation of everyone. It is an area where many students arrive unskilled and can learn much from instructors and other students. At the very least every student should learn how to light a camp stove safely and prepare a meal for the group. These hints may help you organize this part of the training.

Stop the 'ohana on the trail just before the evening campsite. Organize the 'ohana into a cooking group and other work groups then so you can consciously select people who haven't participated much in cooking. You might ask, "Who doesn't know how to cook?", or "Who hasn't prepared a meal for two days?"

It is easy to slip into the easy habit of allowing someone very skilled in cooking to take over the kitchen. To a point this is beneficial, but be sure they teach others and that others get a chance to direct the cooking activities on occasion.

Early in the course a group discussion to explore food likes, dislikes, expectations and realities can help ease stress this topic causes some students. This is a topic through which you can explore acceptance of others, labeling of others, and family food habits. One of the instructors aims through this discussion should be to open people to exploring new foods and to quell complaints and griping before it becomes infectious in the 'ohana.

COURSE CLOSURE

Numerous activities need to be accomplished on the final days at Basecamp to bring closure to the course. They are:

Equipment cleaning and return
Final interviews with instructor
A Course Debriefing with the Program Director
Written Course Critique
Written Course Impression
Written thank you's for scholarship students
A closing ceremony with luau
A marathon-like run or leimaking (optional)

Coordination Upon returning to Basecamp the Instructor, Course Director, Program Director and Basecamp Manager meet to coordinate the schedule of activities. Instructors should then brief the 'ohana so students may plan their time wisely.

Debriefing The Course Director or Program Director leads the debriefing without the instructor being present. Follow group procedures guidelines to establish rapport and enlist the 'ohana support for the process.

Purposes of the debriefing:

Learn first hand about the 'ohana experiences.
Judge, through questioning if:

skills were learned
emergency care was taught well
rules were observed
students are satisfied

Gain verbal criticism of the course
Gain verbal criticism of the instructor
Allow students to comment openly about any aspect of their experience

Written Forms

Have students complete the course critique form first.
The Course Impression should be written or recorded second.
Thank you letters to scholarship sponsors should be written last.

Closing Ceremony The Program or Course Director should preside over this ceremony. Conduct the gathering with dignity, warmth, and inspiration, even though dress and setting will be informal. Include pules, readings, comments by instructor, readings or poems by students. Explain at some length the phenomenon of re-entry and how to ease some of the discomforts of returning to a faster paced life. Offer congratulations to the 'ohana and the individuals, calling them by name to receive a t-shirt and address list. Certificate and wallet card will be sent in mail, but can be displayed and read. Celebrate with a luau.

COURSE REPORTS

At the conclusion of each course the instructor writes a course report for each student. The report is due within 72 hours after the course. The report is sent to the student, a sponsor, employer, or counselor. To provide an accurate description of the student's experience that will be of value to all of these people over time follow these suggestions.

The course is designed and conducted to promote personal growth so the report should focus on the student's development during the course. The course report has three natural sections that reflect back to the course experience.

1. presenting behaviors
2. middle course experiences (struggle and growth)
3. outcomes

The "presenting behaviors" section should accurately describe the student upon arrival and during the beginning phase of the course. This description includes goals, typical behaviors, interests, and group participation. This treatment does not have to be exhaustive but should concentrate on two or three major behavior characteristics that were worked on and changed during the course. Use examples often to clarify your observations. Remember that observations are behaviors you can see, hear, and feel. They are not ideas or guesses. If a student doesn't talk during meetings you can observe that behavior. Don't assume they are shy; they might have a toothache.

The "mid-course" experiences are those that involve growth, struggle, and outstanding accomplishment. For some students these experiences can begin on day two because they are open to change. For others "mid-course experiences" may not begin until day 22 because it takes them that long to relax and become open to others and to the course potential.

"Course outcomes" are what happened regarding the goals, behaviors, interests, and group participation by the end of the course. Students may have developed new goals, they may have made important realizations and behavior changes and these should be documented with examples.

Knowing that you are going to write a report, knowing the form of the report, and knowing basically what the report will be about here are a few steps you can take to produce good reports.

Take field notes daily.

Note each students goals and interests. If they don't have any discuss this with them until they become more focused on why they are on the course.

Periodically, at least once in each environment, assess each student's behavior against the course goals and behavior checklist. If you note problems begin to kaukau with that student.

Make notes prior to your interviews and save them for comparison.

Discuss your student's progress with the Course Director. Your verbalizing will help clarify your thoughts.

Students are the best source of information. Talk to them, ask questions, learn what they are thinking about and how they view their experience.

Begin writing the reports in note and outline form early.

In the process of writing reports keep these guidelines in mind.

Organize your ideas in outline form completely before writing.

Sponsored students arrive with goals well documented. Write about the goals and outcomes.

Write to the student, don't write about the student in the third person.

Avoid judgmental statements and evaluations of a person's worth.

Describe behavior, don't guess about motivation or attitudes.

A lack of expected behavior can be as important as behavior; for example, "you didn't do the rappel".

Present finished reports that are concise and legible.

The organization of the material is left to you, be sure it is clear. One style of writing that may be comfortable for you is to begin with the results of the course and trace the development of these changes back to the course beginning.

Behavior Checklist By observing students while thinking about the behavior traits listed here, a more accurate impression can be gained. Use this list when making field notes, during interviews and when writing course reports.

As an individual
self-accepting
self-aware
self-sufficient
self-disciplined
warm, happy person
comfortable alone

As a learner
listens well
learns easily
follows directions
open to new experiences
curious

Physical traits
strong
good endurance
coordinated
high energy

Relating to the course
confident in new situations
handles fears realistically
has sense of humor
deals with anxiety

As a group member
accepts responsibility of group tasks
exhibits leadership
faces and works on group problems
is an involved member of the 'ohana
speaks up when appropriate

Relating to others
appreciative
trusting
accepting
respectful
friendly, open
listens
empathetic
cooperative
wears well on others
offers help when needed
asks for help when needed
communicates well

During the course
works on service projects
a clean environmental camper
interest in Hawaiiana
understands own behavior and can change
comfortable in wilderness
accepts rules and safety concerns

Notes

RESOURCE MATERIAL

ASTRONOMY

Ninety percent of the stars that can be seen from earth are visible in Hawaii. This is a unique opportunity to observe the movement of stars and to share some of the oral tradition that charted them in the first place.

The Milky Way The Milky Way is visible in the sky year round and is what we see of our own galaxy. Our sun and solar system lies 3/5th of the way (30,000 light years) from the center of the galactic spiral. Our sun is a less than average star and is bound in motion by the gravity of 200 billion other suns. During the summer months the earth's solar rotation faces our night sky towards the center of the galaxy, presenting a bright haze of stars that represent approximately 4/5 of the Milky Way galaxy. During the winter we see only the remaining 1/5th of the stars that lie between us and the outer limits of our galaxy.

Within our galaxy the closest star is Alpha Centauri (4.3 light years or 25 trillion miles) found in the southern sky during the late spring and early summer. The farthest we can see into space with the unaided eye is the Andromeda Galaxy, M-31, found near the constellation Andromeda and seen in the winter. M-31 is a tightly coiled spiral of 200 billion stars 2 million light years away.

The Ecliptic Among the earliest astronomical achievements of any culture was the discovery of the sun's repeating path through the heavens. This course, called the ecliptic, is also very close to the path that the moon and planets appear to pass through our skies. Using the theme of the ecliptic for basic celestial orientation the identification of constellations and their movement becomes a relatively easy matter. As you might expect the ecliptic crosses our sky from east to west and follows a slightly wavy course created by the tilt of the earth on its axis.

The Zodiac The "Circle of Animals" or zodiac identifies the 12 constellations that are located the length of the ecliptic. Astrologically, the ecliptic is divided into 12 equal parts, each identified by the presence of one of these constellations. The construction of natal charts which is the corner stone of individual astrology is done by charting the sun and planets in their relationship to the ecliptic and the constellations of the zodiac in which they are located at the moment of birth.

At any given time approximately 4 zodiac constellations will be in the sky overhead with 2 or 3 more rising out of the east as the night progresses. Each star rises 4 minutes earlier than the night before. The sequence of zodiac constellations from January through December is: Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, Aquarius, Pisces, Aries.

Celestial Navigation Because stars maintain fixed position in relationship to one another as they move across the sky they have been a major source of path finding for travelers through the centuries. Stars travel in long arcs across the sky, moving always parallel to the equator. A zenith star is one that will pass directly over an observer's head and will do so once every 24 hours. Early attempts at navigation in the Pacific recognized this and used the rising, setting and zenith of various stars in conjunction with a knowledge of winds, clouds, birds, and currents to navigate thousands of miles across open ocean.

The star called Arcturus, located by following out the curve on the handle of the Big Dipper, was known in Hawaii as Hokule'a (Star of Gladness). The star travels parallel to 20°N. latitude with a zenith directly over Hawaii. It was a major pathfinder for pacific voyageurs bound for Hawaii.

The star Sirius, the dog star, slightly below and behind the embattled Orion, travels a 20°S. latitude zenith over the Society Islands. Hawaiians called this star Kohu-ho'okele'wa'a, the Canoe Sailing star. Sirius is the brightest star in the sky (next to our sun) and was also called A'a, Burning Brightly, by the Polynesians.

The Hawaiian Calendar Ancient Hawaiians developed a moon calendar containing 12 months of 28 and 29 days. Days were counted as nights, running from dark to dark. Each month of mahina began on the night of the new moon (Hilo) and continued through a lunar cycle. The Hawaiian year began in late November or December with the first new moon after the appearance of the Makalii (Pleiades) in the evening sky. Makalii lies in the constellation Taurus and was known in Greek mythology as the Seven Sisters.

The Makahiki season, during which taxes were paid and there was much festivity, came at the end of the Hawaiian calendar. The Makahiki began in October and November during the 12th lunar cycle with a month sacred to Lono. During this month ho'okupu (gifts) were offered at boundry heiau of each ahupua'a to a procession of ali'i and kahuna of Lono which ended "the land is free, gird yourself for play". The festive Makahiki season continued several months into the new year, ending in January or February when it was time to return to work.

Each day of the Hawaiian month had its own name, some of which were sacred to certain gods while others were particularly favorable for fishing, planting or harvesting. The names of the mahina and the nights were proclaimed by the astronomer kahuna and the years were not specifically named or counted.

Nights of the Moon

1. Hilo (New Moon
2. Hoaka
3. Ku-kahi
4. Ku-lua
5. Ku-kolu
6. Ku-pau
7. Ole-ku-kahi
8. Ole-ku-lua
9. Ole-ku-kolu
10. Ole-ku-pau
11. Huna
12. Mahalu
13. Hua
14. Akua
15. Hoku (Full Moon)
16. Mahealani
17. Kulu
18. La'au-ku-kahi
19. La'au-ku-lua
20. La'au-pau
21. Ole-ku-kahi
22. Ole-ku-lua
23. Ole-pau
24. Kaloa-ku-kahi
25. Kaloa-ku-lua
26. Kaloa-pau
27. Kane
28. Lono
29. Mauli
30. Muku

Hawaiian Lunar Months

1. Makali'i
2. Kaelo
3. Kaulua
4. Nana
5. Welo
6. Iki'iki
7. Kaaona
8. Hinaiaeleele
9. Hilinaeiu
10. Hilinama
11. Ikuna
12. Welehu

Notes

HAWAIIAN SKILLS

Kukui Nut Candles Raw kukui nuts, gathered from the ground are roasted over coals or on a hot rock. When the nut rattles in the shell it is dry enough to burn. Remove the shell and string the nut on the niau of the coconut palm - or any burnable twig. The top nut is lit with care to see that each successive nut ignites in turn.

A kukuinut lamp (ipi kukui) can also be made of a short section of bamboo or a shaped stone in which a burning nut is placed and other roasted nuts placed on top of it to fill the chamber. Torches (kalama) were fashioned by wrapping several strands of strung nuts to a pole with banana or ti leaves.

Lomi Sticks Lomi sticks or laau lomi are easily made from any hard wood and used for a soothing self-massage. Basic shapes vary from

to

Aama Snare An 'ahele (snare) for aama crabs is made with fine thread, the niau of a coconut palm and a light pole. The fine thread is stretched taut at the end of the niau and is layed behind the extended eye of the black rock crab. The aama will lay its eye back against its body hooking itself to the string.

Leimaking Leimaking signifies more than the gathering and construction of green garlands. The opportunity to make a lei in the forest should be combined with the teaching of respect for the inate life and spirit of all things in nature and in appreciation for what the forest has to offer.

Gathering materials for a lei should be an exercise in focusing on small things to examine and appreciate detail. Each piece of the forest is seen as an adornment of its surroundings. Leimaking is asking that we be allowed to become a part of the forest and the forest part of us in return. This is not something to rush through and it must be done completely to have its fullest effect. All left-over flowers and leaf should be returned to the base of a tree as a mulch so that nothing is wasted.

Leimaking Styles

Wili (to twist or wind) Liko and flower are bound to a backing with thin fiber.

Hili (to braid) Leis that are braided together and made of a single material, i.e. palapalai fern, maile, etc.

Haku (to compose, arrange) Weave a lei with a variety of materials adding flowers, etc.

Kui pololei (to string together straight or upright) Normally flowers are strung through the center, i.e. plumeria.

Kau poepoe Flowers are strung together in a circle, i.e. double carnation.

Humupa'a (to stitch together tightly) Material is stitched individually to a fabric backing, often dry flowers.

Drying Fish In the absence of refrigeration the most effective way to preserve excess fish is by salting and drying. Dried fish (i'a kaua'i) was a mainstay in the Hawaiian diet and is part of what fed travelers and upland farmers for centuries.

To prepare small to medium sized fish, remove scales, then filet and clean them by cutting along the dorsal fin to expose the belly. Lay fish flat and apply liberal amount of Hawaiian salt (pa'a kai). To dry, lay fish on clean rocks heated by the sun or string them on a line and suspend them in the direct sun. Do not allow flies to settle on drying meat.

There are 2 stages of drying, partly dried (i'a maemae) for keeping a short time and well dried (i'a malo'o) for keeping a long time. In the hot sun small to medium sized fish will dry in half a day and can then be stored in a dry covered container.

Dried fish was eaten without further preparation or broiled or in stews or soups.

Fire Making The Hawaiians, like other Polynesians, made fire by the ploughing method. Necessary tools include a dry chunk of Hau wood 10"-12" long called aunaki, a smaller hardwood stick filed to a blunt point called aulima, some dry tinder like coconut husk, and a hollow piece of bamboo.

The aunaki is held firmly on the ground while the aulima is moved rapidly and with force back and forth in a preformed groove in the aunaki. As dust begins to collect and smoke appears the tinder is ignited and the bamboo used to blow it gently into a flame. Refer to the Legend of Maui and the Alae bird for the origins of this method.

Native Cooking Techniques

Baking (kalua) A large amount of cooking was done in imu's (earthen ovens) for both large gatherings and individual meals. A fire is built in a hole large enough to hold the food and about 20-25 large fist sized stones. Stones must be solid yet porous to maintain heat without [illegible] or exploding. The fire must burn hot to heat the stones heaped on top of it. When stones are red hot the embers are removed and a smooth bed of banana leaves or smashed stumps are laid over the stones. More leaves follow, then the food is placed in the pit. All this is covered by a thick layer of leaf material (banana, ti, ginger) then by moist burlap or canvas to keep out the dirt. Soil then covers the pit until no smoke

or heat escapes.

About 2 hours is sufficient time for a small imu. Large imu take from 5-12 hours particularly when pork is cooked.

Broiling (pulehu) Pulehu (heaped ashes) is cooking by shoving the food directly into hot ashes and embers. Koala is cooking directly on hot coals or flat red hot stones in an open fire.

Steaming in a closed container (hakui, puholo) Involves small red hot stones placed in a closed container with food and allowed to steam. The stones (eho) were specially chosen and reused.

Broiling wrapped food (laulau) A popular method for fish and fowl. Ti, banana, and ginger leaves were used to wrap food and then cooked directly over the coals, turning occasionally.

Boiling (puholo) Water was brought to boiling by dropping clean hot stones into a calabash of water. Tea and certain greens were cooked in this manner. Kōkōlau, puhaki, and mamaki are easy to find native plants that produce good teas.

Konane Konane is the Hawaiian equivalent of checkers. It is played on a flat stone or board called a papamu that has nearly 50 depressions carved in a checker board pattern. An equal number of basalt (black) and coral (white) pebbles are placed alternately in the depressions until all spaces are used up.

To begin, the player who goes first (usually coral) removes one of his own pebbles from anywhere on the board. The second player then uses his pebbles to jump one of the opponent's, moving only in a straight line and not diagonally. When a stone is jumped over, it is removed from the board and each player makes one move at a time. This carries on much like checkers and will continue until one player can no longer jump one of the opponents pebbles. The winner is the player who makes the last move.

Areas for Developing Skills

1. Coconut weaving: baskets, shelter, ornaments, hats
2. Ti leaf craft: lei la'i, woven head band, ti leaf slippers
3. Fish and prawn traps woven from natural fibers like 'ie'ie. bamboo, u'ulei, etc.
4. Extracting dyes from natural souces: Red from 'a'alī, pink from akala flowers, brown for pala'a, dark dyes from kukui nut bark, painiu fruit, wana and ha'uku'uke.
5. Uses of ulu sap: gum, bird snares, glue
6. Games: Konane, ulumaika

BOTANICAL REFERENCE

To assist instructors in focusing their teaching efforts the following topics and experiences are so important that they are suggested as the minimum biological information students should learn while on Hawaii Bound. At the end of the course the students should know:

1. that Hawaii is absolutely unique in the world in it's wealth of biological forms
2. what factors contribute to Hawaii's uniqueness
3. what endemic means and be able to identify and endemic plant
4. these plants and experience them in some meaningful way:

Kukui	Naupaka
Niu	Ohia lehua
Ti	

5. be able to use at least two plants medicinally

Hawaii's Uniqueness The incredible biota of Hawaii developed as a result of three interrelating phenomena.

1. The islands of Hawaii are tall.
2. The islands are the most isolated land mass in the world.
3. The islands lie in the path of consistant trade winds.

The combination of altitude and trade winds brings consistant and plentiful rain to specific parts of the islands. Over a 30 year period the rain quantity is consistant. Being isolated by over 2,000 miles of ocean in every direction from other land made it extremely difficult for plant and animal life to reach the islands.

Since the islands emerged from the sea only 150 different plant species became successfully established in Hawaii. This amounts to one successful introduction each 30,000 to 50,000 years. No large animal forms, except for the bat and birds, ever made it to Hawaii.

Endomism Plant seeds, insects, and birds that survived the journey to Hawaii and established here are called indigenous. These life forms are found in Hawaii and elsewhere in the world. Beach naupaka, naupaka Kahakai, is an example of an indigenous plant.

Over long periods of time these species of plants and animals mutated and adapted to the existing climatic niches in Hawaii. In the process they became unique life forms. These plants and animals are called endemic, meaning they are found in Hawaii and no other place on earth. Mountain naupaka, naupaka kuahiwi, is an example of an endemic plant.

Because of Hawaii's isolation the highest percentage of endomism in the world occurs here. For instance, the 150 indigenous plants that arrived here developed into 2,600 endemic species. There are 9,000 insects, 2 mammals, and 65 birds that are endemic; that is, they occur in Hawaii and no other place on the planet. Conservative estimates indicate that 95% of Hawaii's forest material is endemic, 98% of insects are endemic.

Exotics When man first arrived in Hawaii 400 A.D. to 600 A.D, he brought plants and animals new to Hawaii; dog, pig, rat, yams, taro and other food plants. These are known as exotics, or man introduced.

Over the past 1,600 years many exotics have been introduced and have changed the ecosystem drastically, some beneficially, others to it's detriment. The most destructive exotics, other than man, have been the hooved animals; cattle, sheep and goats. Their hooves compact the porous soil crushing the shallow root system of Hawaiian endemic species. This has led to large forests dying and being replaced by grassland and desert.

Herbal Medicine Medicine in Hawaii was handled by the kahuna lapa'au la'au who was trained in the art of collecting, preparing, and applying herbal medicines. The process of collecting plants was sensitive to the plant stage, the moon phase, and the plant spirits. Application of medicine acknowledged the relation between the physical and spiritual health of the patient.

During the course assist students in using fundamental plant medicines, such as aloe, shampoo ginger ('awapuhi kuahiwi), guava, mamaki, 'uha loa. See plant list for more details.

Notes

'Aali'i (Dodonaea viscosa)

Endemic; sacred to Kala; red dye from seed capsules (boiled in calabash with hot stones); medicinally for rashes. Known for ability to stand against the wind "Ku'makani", like the tenacious people of Ka'u "Aali'i ku makanio Ka'u". Dryland bush - common below Puu Ulaula and on Saddle.

'Auhuhu (tephrosia purpurea)

Polynesian exotic, coastal shrub with 1" long pods, the leaves and stalk were pounded and used to stun fish in tidal pools. Legume.

'Akala (Rubus hawaiiensis)

Endemic, Hawaiian Raspberry - Rose family. Two native species - upright; sprawling. Pink dye from fruit, low quality tapa from fiber. Medicinally for scaly scalp, burning in bosom, vomiting. Rainforest primarily.

Akia (Wikstromemia)

Endemic, False ohelo, one seed. Source of excellent cordage fiber. Roots and bark used as fish poison; non-edible. Often mistaken for ohelo.

Ala 'ala-wai-nui (Peperomia tetraphylla)

Some native species, over 100 species in Hawaii. Grey dye extracted for tapa. Medicinally mixed with ilima flowers, chewed and fed as purge for newborn babies.

Alahe'e (Plectronia odorata)

Endemic, shrub common Kohala Ditch. Hard durable wood of o'o and spears. Leaves for black dye.

Aloe (Aloe vera and other species)

Exotic, juices for burns, prevents blisters - multiple use poultice.

'Amaumau (Sadleria cyatheoides)

Endemic, tree fern also called ama'u. Pulu gathered commercially, red dye from pounded out bark, young leaves eaten like asparagus. Fronds for thatching and mulch. Halema'uma'u - House of amauma'u term.

Avocado (Persea americana)

Exotic, native of tropical America. Introduced to Hawaii by Don Marin in early 1800's.

Awa (Piper methysticum)

Native of Pacific Islands, early polynesican introduction. Root used for ceremonial drink and medicinal stimulant. Chewed, mixed with water and strained.

'Awapuhi Kuahiwi (Zingiber zerumbet)

Shampoo giner, Polynesian exotic. Sudsy flower for shampoo, thirst quencher. Tapa scent from powder of dried root. Juice for headache-toothache also cuts and scrapes.

'Āwikiwiki (Canavalia galeota)

Native legume often found in Volcano, Ka'u Desert. Entire plant used for itch, ringworm, skin disease.

Coffee (Coffea arabica)

Introduced by Don Marin in 1913, Arabian coffee flourishes here.

Eucalptus (Eucalyptus spp)

50 introduced varieties, source of timber, tannins, and oil. Planted for reforestation. Hawaiian name "Palepiwa" to ward off fever.

Gingers

47 genera, 1,300 species native to Old World tropics. All exotic.

Guava (Psidium guajava)

Introduced by Don Marin for jelly. Leaf buds used for astringent, tea, dysentery and cuts.

Hala (Pandanus tectoris)

Screw pine, possibly one native species, mostly Polynesian exotic. Male and female plants. Leaf used for weaving and thatching. Fruit for brushes. Flower for constipation and pains in chest.

Halapepe (Dracaena aurea)

Endemic ti, soft wood carved for idols, used in Laka ritual. Lily family.

Hapu'u (Cibotium chamissoi)

Endemic tree fern. Pulu harvested from 1850-1884, used for stuffing mattresses. Prehistorically for embalming the dead. Fern starch from hapu'u trunk eaten and used in laundry. Young fiddlehead (Pepe'e) boiled and eaten.

Hau (Hibiscus tiliaceus)

Native in many tropics. Ilihau - inner bark used for rope and fair quality kapa. Ikio- fish net floats, Ama for canoes. Used to light fire with friction of hardwood. (See legend of Maui and Alae bird.)

Hinahina-ku-kahakai (Heliotropium anomalum)

Native to Hawaii. Plant of Hakoolawe, means very grey colored. Used in leis and for tea like koko'olau, also as cooked and salted poultice for fractures.

Honohono (Oplismenus hirtellus)

Exotic Wandering Jew. Common wetland grass. Used externally for measles in a bath, for greens in an imu. Edible as spinach.

'Ie'ie (Freycinetia arborea)

Endemic species sacred to Laka and used in heiau and hula ceremonies. Arial root used for weaving baskets, figures, traps, etc. Somewhat edible fruit. Climbing screw pine.

'Ilima (Sida spp)

Endemic shrub with orange flowers, many varieties, strung for leis. Flowers used for womb disorders and asthma. Malvaceae family like Hau.

Ironwood (Casuarina equisetifolia)

Australian exotic. Replaces Koa in much of South Pacific (warrior tree "toa"). Truely iron wood.

Jobs Tears (Coix lacryma-jobi)

Pu'ohe'ohe. Exotic, seeds for necklaces, sometimes worn for curative reasons.

Kamani, False (Terminalia catappa)

Indian Almond, edible nut, hard wood, fruit yields dye and ink, high tannin content in bark. Exotic.

Kaunaoa Pehu (Cassytha filiforuis)

Yellow orange climbing vine used for leis. Medicinally to remove phlegm in chest.

Kiawe (Prosopis pallida)

Algaroba, Mesquite. Introduced by Fr. Bachelot in 1828. Bean for cattle fodder, excellent honey, hardwood, coastline cover. Lowers water table.

Ko (Poaceae)

Sugar cane. Early Polynesian introduced, used as medicinal sweetner. First mill in Hawaii on Lanai by Chinese 1802. First sugar enterprise in 1835 Ladd & Co., Koloa, Kauai.

Koa (Acacia koa)

Legume family, endemic to Hawaii. Juvenile true leaf: adult phyllode sickle, wide phyllode adapted to Hawaiian environment. Wood has multiple uses.

Koali (Ipomoea congesta)

Morning glory, mountain variety, vine for cordage. Used as purative and externally for bruises. etc. Light purple flower. Native.

Koko'olau (Biden hawaiiensis)

Composite family, endemic Biden species. One exotic species is native. Spanish needle, introduced before 1864. Blood purifying tea. Thrush remedy (fungus disease formally common in children, "ea".)

Kou (Cordia subcordata)

Early polynesians introduced, with soft lasting wood, with wavy dark and light grain. Favorite shade tree, wood used for 'umeke (bowl). Numbers reduced by introduced moth. Lowland and seashore plant.

Kūkaenene (Coprosma ernodeoides)

Endemic species. Low shrub with dark berry found in arid climate, as below Red Hill. Berry for dye and laxative. Name means goose dung.

Kukui (Aleurites moluccana)

Candlenut, native to Hawaii, State tree. Valuable oil source for light, used to quiet ripples on water for fishing. Bark pounded and used to soak and tan olona fishing nets to prolong life. Many dyes available. Soot of nuts used for tatooing. Resin for adhesive. Jewelry from nuts. Flower and sap of husk for skin and thrush ailments.

Lama (Maha Sandwicensis)

Endemic ebony. Reddish yellow edible berry in winter. Hard, sacred wood. Used to make sacred enclosures. A form of Laka (Kinolau) placed uncarved on hula alter.

Lantana (Lantana camara)

Introduced as garden plant in 1858, instant pest. Eight insects introduced in 1902 to combat lantana growth.

Laukahi

Broad leafed plantain. An exotic weed used medicinally in a tea as a blood purifier.

Lobelia (Lobeliaceae spp)

100 endemic species, 6 endemic genera. Unique forest plants now in decline. Evolutionary relationship between curved bills of Hawaiian birds and shape of lobelia flower. Commonly called "oha" or "ohawai".

Macadamia (Macadamia ternifolia)

Queensland nut from Australia. Introduced in 1890. Kernel is 70% fat, good source of B-1, calcium, phosphorus and iron.

Mai'a (Musa spp)

Banana, 62 varieties in Hawaii pre-Cook. Fruit kapu for women, often used in offerings, stumps for imus, bark for wrapping. Polynesia exotic normally planted where found.

Maile (Alyxia olivaeformis)

Sacred to Laka, used for fragrant leis, also in a sweet bath to remove yellow splotches on skin. Endemic, several species, maile sisters legend.

Mamaki (Pipturus albidus)

Native to Hawaii. Used for kapa (ka = the, pa = beaten). Fruit as laxative and for thrush. Male and female plants. Endemic nettle.

Mamane (Edwardsia chrysophylla)

Endemic tree with hard durable wood. Bean is favorite of palila bird. Used for agricultural tools, house timbers, holua sled runners.

Milo (Thespesia populnea)

Early polynesian introduced. Looks like hau but has distinct seed pod. Hard wood for bowls, seed as laxative, leaves edible raw or cooked.

Moa (Psilotum nudem)

Very primitive flowering plant. Moa means chicken, Hawaiian game like "wishbones" where winner crows like a chicken. Tea or ea in children, also laxative. Indigenous.

Naio (Myoporum sanwicense)

False sandalwood. Native tree with mauka/makai varieties. Used in house timbers. Lightly scented.

Naupaka (Scaveala spp)

30+ species all with irregular flower. Example of speciation. Indigenous. Ocean species (Kahakai) ancestor of endemic mountain species (Kuahiwi). Legend of two lovers who quarrel, woman tears flower and tells man no love 'til complete flower is found. Man dies of broken heart. Root pounded and mixed with salt for poultice.

Niu (Cocos nucifera)

Coconut palm. Tradition says introduced from near Tahiti by early Polynesians. Hawaii too cold for commercial growth. Shell=utensils, meat = oil and food, milk to drink, leaf = thatching, stump = pahu, husk = sennet.

Noni (Morinda citrifolia)

Polynesians introduced. Bark from the root mixed with baked coral (lime) = red dye; root = yellow dye; fruit = famine food, skin irritation, high blood pressure.

'Ōhelo (Vaccinium reticulatum)

Native to Hawaii, sacred to Pele (offer to her first). Several varieties, often mistaken of Akia. Many seeds like blueberry.

'Ōhia-'ai (Eugenia malaccensis)

Mountain apple, edible; for sores in mouth. Polynesian exotic. Wood was sacred and used to carve idols.

'Ōhia-lehua (Metrosideros collina)

Endemic species. Hard wood for idols, tools, spears. Sacred to Pele. Historical legend of Ohia (man) and Lehua (woman) lovers. Embodies ku - see legend in "Beckwith" Hawaiian Mythology.

'Olapa (Cheirodendron trigynum)

Endemic. 'Olapa refers to hula dancers as wind on the leaf. Sacred to Laka. Lapalapa is similar species with rounder leaves. Bluish dye from bark and leaves.

Olonā (Touchardia latifolia)

Endemic nettle, excellent fiber. Leaves longer and larger than mamake, rare. Capt. Cook said olona cordage four times stronger than European rope.

'Olopua (Osmanthus sandwicensis)

Common endemic tree. Bluish fruits. Hard durable wood used for adze handles.

Painiu (Astelia argyris)

Silvery leafed epiphyte (non-parasitic reliance) used in garlands. Blue kapa dye from fruit, native. One of three endemic lilies.

Pāmakani (Eupatorium riparium)

Aggressive wet land weed, purple veins. Introduced to Hawaii in 1926 from Mexico. Pamakani means windblown, its method of dispersal.

Pala'ā (Stenoloma chinensis)

Lacy fern. Red dye from frond. Good tea to loosen bowels. Used in Laka rituals. Endemic.

Palapalai (Microlepia stringosa)

Endemic fern. Used in cases of insanity. Also leis, formal decorations. Sacred to Laka.

Pohā (Physalis peruviana)

Cape gooseberry. Berries under for jams and jellies. Exotic.

Pōhuehue (Ipomoea pes-caprae)

Beach morning glory. Vine used to herd fish and for whipping ocean to attract surf. Roots and stems edible. Indigenous.

Pia (Tacca leontopetaloides)

Polynesian arrowroot, starch source. Used for dysentery. Polynesian exotic.

Pōpolo (Solanium nigrum)

Black nightshade. Shrub with black berry. Stem and leaves used for colds and asthma. Exotic.

Puahanui (Broussaisia agruta)

Relative of hydrangea endemic to Hawaii. Unisex flower, fruits and to aid in conception. Pua-aha-nui = large collection of flowers.

Puakala (Argemone glavea)

Endemic Hawaiian poppy. Sap slightly narcotic. Used for toothaches, neuralgia and ulcers. One of the few thorned natives.

Pūkiawe (Styphelia tameiameiae)

Endemic dryland bush. Berry for leis, smoke of wood freed sacred chiefs of kapus to mingle with commoners.

Taro (Araceae family) kalo

By legend taro created before mankind, as still born first child of Papa and Wakea. Calcium oxalate crystals for natural protection, must cook. Luau - leaf, oha - keiki taro shoot, huli - cuttings, kalo - corn. Polynesian exotic, 260 varieties in Hawaii.

Ti (Ape taetsia fruticosa)

Lau kī, Lā'ī sacred to Lono. Used in thatching; shredded for leis and hula skirts; wrapping foods; cups; plates; sandals, sugar in root, baked and eaten. ʻŌkolehao.

'Uala (Ipomea batatas)

Sweet potato, purple stem. Native of tropical American distributed west around 1000 A.D. Associated with Kama pua'a.

'Ūhā loa (Waltheria americana)

Fuzzy dryland shrub. Bark of root chewed or brewed for sore throat, slightly anesthetic. Indigenous.

'Ulu (Artocarpus communis)

Breadfruit. Early Pacific introduction. Fruit baked and eaten, trunk for pahus, stipules for fine abrasive. Pitch used to snare birds. Milk for cuts and scratches.

Uluhe (Dicranopteris emarginata)

Indigenous with endemic subspecies. Creeping stem, pest in thickets, "healer" of landslides. Juice drunk as laxative.

'U'ulei (Osteomeles anthyllidifolia)

Rose family, endemic. Strong durable vine for weaving and fish traps.

Wauke (Broussonetia papyrifera)

Paper mulberry. Once heavily cultivated for fiber. Good cordage and kapa. Young shoots to cure body ailments and weakness. Polynesian exotic.

Wā wae'iole (Lycopodiales cernium)

Native clubmoss, wawae - foot, iole - race. Medicinally for rheumatism in a bath.

Wiliwili (Erythrina sandwicensis)

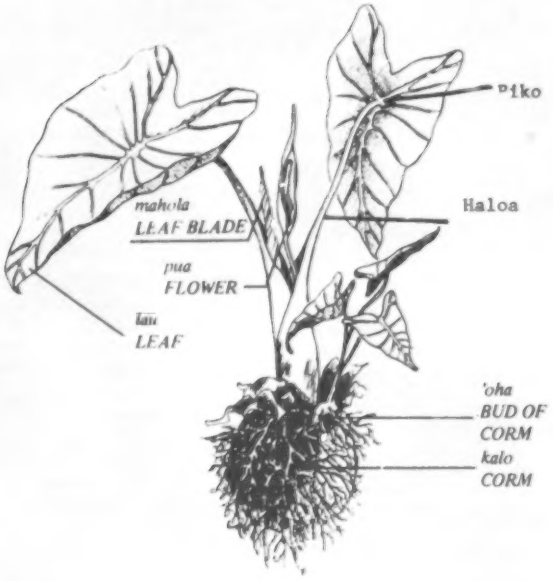
Endemic dryland tree. Thorns on trunk, light wood for [illegible], net floats. Seeds for leis; flower used in many sex organ difficulties.

The Ethnobotany of Taro Taro is a native plant of India and was transported by Polynesian migrations throughout the Pacific. In Fiji it is called dalo, in early Hawaii it was called kalo and was recorded by early English explorers by its Tahitian pronunciation as taro. It was a primary staple in the Hawaiian diet but secondary to ulu, yams and sweet potatoes throughout the rest of the Pacific.

In Hawaiian mythology taro was the first born child of Wakea, father sky, and Papa, mother earth. The child was stillborn and buried shortly after birth. On the next day a taro plant sprouted above the child and the oha or sprouts from which taro is cultivated creates a continuous link of all taro plants to a common first born ancestor.

The second child of Papa and Wakea was called Haloa, long or continuous breath, who became the progenitor of the human race. Taro then precedes man in the Hawaiian creation myth and plays an important role in the interpretation of the Hawaiian concept of 'ohana around which all Hawaiian interaction was structured. To complete the interrelation of taro and man the term haloa is used to describe the long stalk of the taro plant between the corum and the leaf.

All taro contain chemical crystals of calcium oxalate that make them inedible without cooking.



FISH REFERENCE

For identification of the fish mentioned here and for information about other fish, see the bibliography.

A'awa (Lepidapolis bilunulatus)

Common in the coral reef all times of the year, eaten broiled or dried. Sometimes taken as a pupu after drinking awa, as an after-taste.

'Aha (Stronglura indica)

The needlefish were feared because they often leap out of the water when startled and may pierce a fisherman as they descend. Eaten broiled; flesh is delicious, both flesh and bones slightly bluish when cooked.

'Ahi (Thynnus thynnus)

Kona and Ka'u famous for 'ahi. The chiefs used to fish for it as a sport. May to August is the best season. Eaten raw, baked in the imu whole, or cut in pieces, wrapped in ti leaves then baked, or dried.

Aholehole (Kuhlia sandwicensis)(sparkling)

One of the "sea-pigs" used as a substitute for pig if pig was not available. Used in ceremonies in which evil needed to be stripped away. (Hole, or ahole, means to strip away). Buried under house posts when building a new house. Eaten raw, dried, broiled on hot coals, and salted or ho'omelumelu.

Aku (Katsuwonus pelamys)

Throughout Polynesia, the eyeballs are prized as a delicacy. Eaten raw, broiled, cooked in the imu, dried, or used for palu.

Akule (Selar crumenophthalmus)

Eaten raw, broiled, booked in ti-leaf bundles placed over the taro in the imu. Good for palu. A favorite fish for drying. When a school was surrounded, the kahuna would pick out a first fish, and throw it back into the sea, with a prayer to the local fish god, or to Ku'ula. Akule schools move from place to place.

'Ala'ihi (Holocentrus species)

Eaten raw, broiled, salted. Said to have been a favorite fish of Kamehameha III.

'Ama'ama (Mugil cephalus)

Mullet were caught young in nets and kept in ponds. If eaten raw, a little manauea or 'o'olu limu were added. Broiled or baked in ti or ginger leaves. One of the favorite of the "sea-pigs".

Awecweo (Priacanthus species)(Glowing red)

White flesh good for broiling and drying, not good for cooking in ti-leaves unless the skin is removed.

Hilu (Labridai)(Well behaved)

They associate with 'a'awa fish. A "quiet, ladylike fish". A child that is quiet from childhood up is called a hilu. A pregnant woman who eats hilu will have a quiet, dignified child.

Hinalea (Thalassoma ballieui and others)

Often mentioned in tales as the proper fish to eat after 'awa. Sometimes used as offering to gods. Kamakau says that the fish got its name when the goddess 'E'epa, angered at two supernatural beings who had helped her husband, tore her enemies to pieces and the pieces became the Hinalea fish. Favorite way of cooking was broiled.

Humuhumu (Balistidae) (to fit the pieces together)

Some people say good to eat, some say no. All humuhumu have a strong smell, like a pig, and were skinned before eating. Sometimes used for fuel. Caught by lowering a basket of cooked pumpkin or sweet potatoes as bait into a school.

Kala (Acanthuridae)(rough)

The skin is tough and was used for the tops of coconut-shell knee drums. The favored way to eat the Kala is to broil it. To get rid of the odor of the fish; "Lay the fish across the palms of the hands, head on the left palm, tail on the right. Breathe (inhale) over the fish, turning the head from left to right, and then expel the breath violently. Turn the fish over and repeat. (Lilly Akana)." The same was done for Palani and Pawalu.

Kole (Ctenochaetus strigosus)(raw skinned)

There is a tradition when building a house; Kole were put under the house posts on the east side. If a kahuna entered and predicted trouble for the householders, he would die.

Kumu (Parupeneus porphyreus)

Sometimes kept in pools to eat after drinking 'awa. Used as an offering when the priest wanted a red fish. It was kapu to women because of the color: it suggested the menstrual period, when women were set apart. Eaten broiled, cooked in ti-leaves, raw, or salted lightly for two or three days then eaten cooked.

Manini (Acanthurus triostrgus)

A much desired fish. Usually eaten without removing anything but the gall bladder. Eaten raw, and fresh from the water.

Mano

Mano was the name for all but niuhi, the man-eater. Sharks were eaten except when the shark was considered to be an 'amakua. Such sharks were called mano kanaka, supposedly born of a human mother and a shark father. An old chant speaks of the eyes of Niuhi, sometimes seen as a glow in the water at night:

> ... the great shark
> Niuhi with the fiery eyes
> That flash in the deep sea.
> Oh! Alas!
> When the wiliwili tree blooms,
> the shark bites...

Moano (Parupeneus multifasciatus)

Hawaiians believes that the Moano ate the lehua blossom, and in this way got their red color. Sometimes referred to as moano-nue-ka-lehua (great moano of the lehua). Eaten raw or broiled in ti leaves.

Moi (Ploydactylus sexfifis)

A fish for chiefs. Commoners were not allow to eat it. They were an omen of disaster to the chiefs when they appeared in large numbers.

Nenue (Kyphosus fuscus)

Feeds on limu nanue and limu kala. When very fat, only the gall bladder was removed. The guts were saved to make a relish. Reserved for the chiefs in ancient times. Eaten raw, or wrapped in ti leaves and broiled, good for palu.

'Opelu (Decapterus scantae-helenae)

Vancouver, speaking of aku and 'opelu says: "during the months that one is permitted to be caught, the other is prohibited." Eaten raw, dried, sometimes broiled after drying, or broiled when fresh.

Palani (Acanthurus dussumieri)

There is a tale of how the palani got its smell: Ke'emalu says that a goddess, floating in the ocean, called to her ancestor in the form of a palani to help her to shore. She got a ride on the back of the palani. However, while she was being carried to shore, she urinated on the back of the fish, being unable to control herself at the time. Her ancestor left her at sea. And so the palani got its smell. Eaten raw, broiled or cooked in a calabash.

Puhi

There are many eels in Hawaii. Jordan and Evermann recorded six conger eels, one snipe eel, eight snake eels, one of the family Moringuidae, thirty-five morays. Salt water eels were eaten: fresh water eels were used ceremonially only. Eels were caught head first in a scoop net, by basket traps, by spearing, by hook and line, and by "eel pinching."

Uhu (Scarus species) (persistent in going ahead willfully)

Uhu has a tasty liver, and the flesh was usually cooked with pieces of the fat liver. The uhu revealed to the fishermen what was going on at home. If the uhu played in the water, it was a sign of too much levity on the part of the wife at home. The wife was supposed to conduct herself soberly when her husband was at sea. If two uhu were rubbing noses, it meant there was flirting going on at home.

Ulua (Carangidae, species of)

Eaten raw or cooked. "The eyes were well liked, stuffed into the belly before the fish was placed in the imu. The savory liquid around the eyeball was the delicacy, the eyeball itself becoming hard and unpalatable when cooked." (Titcomb, p. 156).

Weke (certain species of Mullidae)(to open)

Red and light colored weke were used as offerings to the gods. The meaning of the term weke, to open, made it popular for use in magic, especially if offered with a prayer to open or release something, such as evil thoughts, preparatory to forgiveness, or a prayer to open the door of mystery so as to reveal the truth. (Mrs. Pukui).

Notes

LIMU REFERENCE

"The word 'limu' is defined by Pukui and Elbert (1957) as a general name for all kinds of plants living under water, both fresh and salt, also algae growing in any damp place in the air, as on the ground, rocks, and on other plants; also mosses, liverworts and lichens..." (Abbott). Limu should not be scraped off the rocks but rather picked so as to allow the rest to remain intact.

Because of the kapu to women on different foods, women became experts at the gathering of limu. Most limu were eaten raw, salted or dried. Some were cooked with meats to thicken stews. The favorite way to eat limu was with raw fish. For identification, see bibliography.

Limu 'Ele'Ele (Enteromorpha prolifera)

Black limu, from the dark green color it takes on standing. Usually eaten in stews, or with a soft raw fish. A small amount will flavor a large amount of stew. 'Ele'ele is an indicator of fresh or brackish water.

Limu Pakaiea (Ulva faciata)

Means 'spread out.' Eaten mixed with other limu, in boiling water as a light soup, with chili peppers as a relish. It was used as an adornment in olden times in the hula. Kapu to those with shark as amakua.

Limu Wawae'iole (Codium edule)

Means rat's feet, after the thin cylindrical branches. Usually eaten as a single limu with fish or in a stew.

Limu Lipoa (Dictryopteris plagiogramma)

Means limu that is gathered from the deep. The characteristic odor and spicy flavor are highly favored. Usually eaten with fish, and in stew.

Limu Kala (Saragassum echinocarpum)

Means 'to forgive'. Eaten in a soup or with other limu. If it isn't finely chopped it is hard to chew. Malo says that this limu was used in a ceremony performed to purify someone following the burial of a relative whose body had been watched and mourned over. It was also used in ceremony at the lifting of the kapu on opelu. Limu Kala was used in ho'oponopono. Because turtles ate limu Kala, it was also called limu Honu.

Limu Pahe'e (Porphyra sp.)

Means 'slippery' after the texture of the plants. Eaten with delicately flavored raw fish.

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Limu Kohu (Asparagopsis taxiformis)

Means 'supreme'. Abbott says that this is the favorite limu of most Hawaiians. Eaten in many ways after soaking overnight to remove iodine flavor.

Limu Manauea (Garcilaria coronopiforia)

Means 'erect branches', allusion unknown. Japanese call this limu Ogo. When added to stews it will thicken them. Eaten mixed with other limu and eaten with fish or meat.

Limu 'Aki'aki (Ahnfeltia concinna)

Means 'nibbles after the small bites necessary to chew it. Old Hawaiians used this limu with the baking of chicken or fish in the imu. Also eaten with opihi or used to thicken soups.

Limu Lipe'epe'e (Laurencia succisa)

Means 'hidden limu' after the nesting habits. Chopped and eaten with rawfish, its texture and flavor are particularly liked. It was kapu to hula dancers as pe'epe'e means hidden and it was believed that the secrets of the hula would be hidden from the dancers who ate the limu.

Limu Mane'one'o (Laurencia nidifica)

Means 'ticklish' after the pepperish flavor. Used with raw fish, raw liver, or mixed with other seaweeds of mild flavor such as limu manauea.

Limu Huluhuluwae'na (Grateloupia filicina)

Means 'pubic hair' after the dark, finely branched stems. Eaten combined with raw liver, added to stews, with dried and broiled octopus. The plants found in Waikiki are said to have been brought from Honolowai, Maui, for Queen Liliuokalani and planted at her seaside home there.

HAWAIIAN TIME LINE

Geochronology

70-40 million years	Emperor Seamounts
17 million	Midway
11 million	French Frigate Shoals
6 million	Kauai
4 million	Waianae Mountains
3 million	Koolau Mountains, West Molokai
1.8 million	East Molokai
1.5 million	West Maui
1.0 million	Haleakala
0.8 million	Kohala Mountains
0.5 million	Mauna Kea, Mauna Loa, Kilauea

Historical

500 AD	First Polynesian contact (Marquesan Islands) Mo'okini built heiau at Upolu Islands settled
1000 AD	Second migration (Society Islands) Pa'ao rebuilds Mo'okini and Wahaula heiau
1200	Pili ancestral line arrives from Raiatea (Pilikaeae)
1400	Liloa-alii in Waipio 1455-1485
1500	Umi, the peasant king 1490-1525 Keawenui 1535-1565
1600	Keawe 1685-1720
1700	Alapainui 1720-1754
1753-58	Kamehameha is born at Kokoiki, Kohala Kalaniopuu rules Hawaii 1754-1782
1778	Capt. Cook lands at Waimea, Kauai
1779	Kalaiopuu and Kamehameha visit Capt. Cook in canoes off Maui

1779 (cont'd) Capt. Cook explores Big Island coastline, lands at Kealakekua during the Makahiki (Oct.-Nov.)
Cook estimates 300,000 Hawaiians

1780 Kalaniopuu holds council at Waipio: wills his kingdom to Kiwalao, Ku-kai-ili-moku to Kamehameha

1782 Kiwalao takes Kalaniopuu's bones to Hale of Keawe at Honaunau. Battle of Mokuohai against Kamehameha, Kiwalao dies in battle at the hands of Keeaumoku

Big Island Dominions

Kamehameha rules Kohala, Kona
Keawemauhili rules Hilo, Puna
Keoua rules Ka'u
Maui and Oahu are ruled by Kahekili

1783 Mamalahoa incident in Puna (Kamehemeha)

1790 "Fair American" and Isaac Davis captured in South Kona. John Young held prisoner from "Eleanora" at Kealakekua.
Kamehameha routs some of Kahekili's troops at Iao, Maui (Kepaniwai)
Keoua marches north from Ka'u, kills Keawemauhili in Hilo, engages Kamehameha in Hamakua.
Keoua army headed home, Kilauea eruption kills 80 (footprints)
First sandalwood gathered on Kauai. Sandalwood era grows until 1829
Kamehameha begins Puukohola heiau

1791 Waimanu sea battle - Kepuwahaulaula

1792 Keoua sacrificed at Puukohola dedication
Capt. Vancouver visits Hawaii 1792-94, introduces cattle at Kealakekua 1793. Manages temporary cession of Hawaii to England 1794.

1795 Kamehameha routs Oahu troops at Nuuanu
Kauai invasion fails, Islands basically united

1812 Kamehameha retires to Kona, dies in 1819

1819 First whaling ships in Hawaiian waters, industry peaks 1845-55, declined by 1859
Liholiho becomes king at 22 years old
"Ai Noa" at Kailua, Kona. Kapu system ends (November)
Battle of Kuamoo, Kekuaokalani and Manono die defending the old religion

1820 First missionaries arrive at Kawaihae aboard the "Thaddeus" (April)

1823 Rev. Ellis travels around island of Hawaii

1824 Liholiho and queen die in England

1832	Missionary census 130,312 Hawaiians
1835	First commercial sugar, Ladd & Co. Koloa, Kauai
1839	Wilkes expediton to Mauna Loa
1843	Fr. Elias Bond becomes dominant missionary in Kohala
1848	Great Mahele - major land reform
1850	Government census 84,165 Hawaiians
1852	First Chinese immigration as sugar labor
1860	American Civil War
1863	Fr. Bond starts Kohala Sugar Co. with Sam Castle
1868	First Japanese immigrants (Gannen Mono), most arrive after 1865
1870's	Fr. Damien in Puna, Kohala, Kalaupapa
1876	Reciprocity treaty creates sugar boom
1890	First Portugese immigration
1893	Queen Liliuokalani overthrown, Republic established
1898	Hawai'i becomes a Territory of the United States
1901	Puerto Rican immigration
1907	First Filipino immigration
1914	World War I
1927	Royal Hawaiian Hotel built in Waikiki
1941	World War II
1959	Statehood
1964	Kaanapali begins outer island resort development
1972	Hawai'i Bound School founded

HAWAIIAN LAND DIVISIONS

Living so intimately with nature it is not surprising that Hawaiians recognized natural transitions in land and vegetation. The geological and botanical zones were acknowledged in the language and in part because political zones as well.

Direction Two basic directions are derived from the island land form; mauka, toward the mountain and makai, toward the sea.

Vegetation Zones Hawaiians recognized three major land zones that reflected vegetation, elevation and rainfall. These three basic zones were further subdivided into nine smaller vegetation zones.

The three major zones are: kula, wao and kua. Kula is the low-land, open dry country. Irrigation brought this land into cultivation. The wao is the dew zone and includes most of the forests. The kua is land above the dew zone to the summit of the mountains.

Here is a listing of all ten vegetation zones with the chief characteristics:

Kula kai - dry land, pili grass, low trees
Kula waena - extensive dry planes, small trees
Kula uka - agriculture, sweet potatoes, dryland taro

Wao kanaka - beginning of dew zone, man manipulated zone, ti, ferns
Wao akua - where gods dwell, forest
Wao nahele - large trees, rainforest
Wao ma'u kele - really giant koa trees, perpetual cloud

Kua hea - small trees and shrubs, above dew zone
Kua mauna - no trees, barren area, ridge
Kua hiwi - summit of mountain

Hawaiian Land Tenure To provide a basis of self-sufficiency for Hawaiian communities land was divided into sections that ran from the sea to mountain top called ahupua'a. This division provided each village with land and forest materials from the kula, wao and kua regions.

These are the primary land divisions, used in ancient Hawaii. Today's political subdivision parallel the old boundaries.

Moku puni - island (the land surrounded)
Moku - district. The island of Hawaii has six moku; Hilo, Puna, Ka'u, Kona, Kohala and Hamakua.
Okana - smaller districts composed of several ahupua'a
Ahupua'a - mountain to ocean land division and a basic political and economic unit. Ahupua'a is a combination of ahu, stone altar, and pua'a, pig. This refers to the offering given to Lono during the Makahiki at the boundary heiau of each ahupua'a. The pig is the kino of Lono.
Ili - a subdivision within the ahupua'a tended by a single 'ohana
Kuleana - a term formalized after the great Mahele in 1848, it refers to the plot of land being maintained and lived on by an individual or 'ohana.

The supervision and taxing of land began with the alii nui who ruled a given moku or moku puni. 'Okana and ahupua'a were then parceled out among lesser chiefs who were either family to or warriors for the ali'i nui. These ali'i were often represented by a konohiki or agent who supervised planting, water use, and tax collection. After the Mahele these konohiki agents became illegal and the konohiki rights reverted to the ali'i personally. The Mahele, in 1848, set the foundation for private land ownership by dividing all land in three categories. Approximately one third became government land under a united monarchy, another third became personal property of individual ali'i and a final third available for commoners.

HAWAIIAN AKUA

Major Akua of Hawaii Hawaiian religion revolved around four major akua (gods). Each akua was worshipped in a variety of roles and took several specific bodily forms (kino) in the environment. The major akua were brought to Hawaii in separate migrations so that depending on lineage and role in life an individual might have emphasized his worship of one or two of these in deference to the others.

Ku (the erect) Ku of the forest, patron of canoe builders, ku kulia (of dry planting) ku ke olo walu (of wet planting), ku ula (of deep sea fishing), ku kai ili moku (of island snatchers). Ku is often associated with the god of war. Kino - Ti, ulu coconut, eels, sea cucumbers.

Kane (the primordial male dwelling in eternity) Kane the life giver, plays an early role in creation mythology. Embodies the rain, the wind, and rainbows. Ka(ne) wai ola (kane waters of life) worshipped by taro planters. Kino - taro, sugar cane, and bamboo.

Kanaloa (akua of the ocean and ocean winds) Related to kane in the process of finding fresh water. Kino - octopus, squid, and banana.

Lono (the thunderer) An agricultural akua that plays a major role in the yearly makahiki. Legend says Lono came from Kahiki with the appearance of the Pleiades in the evening sky, landing at Kealakekua (path of the gods). Kino - sweet potato, gourds, rain clouds, also as Kamapua'a, the hog.

Pele The volcano goddess was an important demi-god in Hawaiian mythology. She resides in Halema'uma'u crater and has followed a migration first from Kahiki to Kauai and down the island chain to Hawaii. Kalakaua claims her worship in Hawaii began in the 12th century when she arrived at Kilauea with five brothers and eight sisters. Her sister Hi'iaka is particularly well recorded in legends. Pele took several forms: a white dog, a beautiful woman, and old lady fire.

Notes

LEGENDS

The legends and myths of old Hawaii are most effective for teaching a sense of history and Hawaiian character. These are basically stories of people, places and spirits that require a particular skills for story telling to make them come alive. To be able to deliver a legend spontaneously about a place where you are standing and in a manner that is exciting will bring a new dimension into your course.

Kohala

1. Sharkman of Waipiʻo (Westervelt, Ghost and Ghost Gods, Thrum, Hawaiian Folk Tales)

2. Umi, the Peasant King (Kalakaua, Legends and Myths of Hawaii)

3. Story of Kiha-pu (Kalakaua, Legends and Myths of Hawaii)

4. Kamapua'a (Beckwith, Hawaiian Mythology; Kalakaua, Legends and Myths)

5. The Kane Worship, Kane and Kanaloa (Beckwith, Hawaiian Mythology)

6. Legend of Ohia and Lehua

7. Kalaniopu'u and other Kohala Chiefs (Kamakau, Ruling Chiefs of Hawaii)

Mauna Loa - Ka'u

1. Pele (Kalakaua, Legends and Myths; Beckwith, Hawaiian Mythology; Thrum, Hawaiian Folk Tales; Westervelt, Legends of Volcano's)

2. Pele's Sisters (Beckwith, Hawaiian Mythology)

3. Lohiau and Hiiaka (Kalakaua, Legends and Myths)

4. Laiekawai and the Maile Sisters (Kalakaua, Legends and Myths)

5. Kahavari, Chief of Puna (Kalakaua, Legends and Myths)

6. Pa'ao of Samoa (Westervelt, Historical Legends; Beckwith, Hawaiian Mythology)

Ocean

1. Kuula the Fishgod (Thrum, Hawaiian Folk Tales)

2. Law of the Splintered Paddle (Westervelt, Historical Legends)

3. Waters of Kane (Pukui, Waters of Kane)

SONGS

Mele Ho'onoa This mele is used prior to entering a forest environment. It seeks understanding and compassion from forest spirits, asking that we be free to stand and to travel with aloha for the creation that surrounds us. It is best delivered as a kepakepa mele (talking chant) either read or memorized and done so earnestly.

Noho ana Laka i ka ulu wehiwehi	Laka dwells in the upland forest
Ka ohi'a ku iluna o Mauna Loa	As the ohi'a above Mauna Loa
Aloha mai ia'u Kaulanaula	Be compassionate to me Kaulanaula
Eia la ka ula leo	Here is a voice offering
He kanaenae aloha na'u ia oe	An offering of love/respect from me to you
Eli e[illegible] kapu	Strong sacredness
Eie [illegible] noa	Strong freedom
Noa [illegible]	Free to stand
Noa [illegible]ele	Free to travel
[illegible]awai o ke akua	Free from the laws of the gods

Hawai'i Aloha

E Hawai'i, i ku'u one hanau e	O Hawai'i, O sands of my birth,
Ku'u home kulaiwi nei,	My native home,
Oli no au i na pono lani e	I rejoice in the blessings of heaven
E Hawai'i, aloha e	O Hawai'i, aloha.
Hui	Chorus
E hau'oli na opio o Hawai'i nei	Happy youth of Hawai'i
'Oli e! 'Oli e!	Rejoice! Rejoice!
Mai na aheahe makani e pa mai nei	Gentle breezes blow
Mau ke aloha, no Hawai'i.	Love always for Hawai'i.
E ha'i mai kou mau kini lani e	May your devine throngs speak
Kou mau kupa aloha, e Hawai'i.	Your loving people, O Hawai'i.
Na mea 'olino kamaha 'o no luna mai	The holy light from above.
E Hawai'i, aloha e.	O Hawai'i, aloha.
Na ke Akua e Malama mai ia'oe,	God protect you,
Kou mau kaulono aloha nei,	Your beloved ridges,
Kou mau Kahawai 'olinolino mau,	Your ever glistening streams,
Kou mau mala pua nani e.	Your beautiful flower gardens.

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Hilo Hanakahi

Hanakahi was a famous chief of Hilo and a symbol of peace. Hilo-Hanakahi is a section of Hilo towards Keaukaho. The progression of places run clockwise around the island and is the path that the makahiki procession followed.

Hilo, Hanakahi, i ka ua Kane-lehua.	Hilo Hanakahi, rain rustling lehua.
Puna, paia'ala, i ka paia'ala i ka hala.	Puna, frangrant bowers, bowers fragrant with hala.
Ka'u i ka makani, i ka makani kuehu lepo.	Ka'u, the wind, the dirt scattering wind.
Kona, i ke kai, i ke kai ma 'oki'oki.	Kona, the sea, the streaked sea.
Kawaihae, i ke kai, k ke kai hawanawana.	Kawaihae, the sea, the whispering sea.
Waimea, i ka ua, i ka ua Kipu'upu'u	Waimea, the rain, the Kipu'upu'u rain.
Kohala, i ka makani, i ka makani 'Apa'apa'a	Kohala, the wind, the 'Apa'apa'a wind.
Hamakua, i ka pali, i ka pali lele Koa'e.	Hamakua, the cliff, the tropic birds flying cliffs.
Haina ka puana, i ka ua Kane lehua	Tell the refrain, the rain rustling lehua.

Hawai'i Pono'i The Hawaii state anthem originally adapted from the British "God Save the King" with Hawaiian verse by King Kalakaua. Set to music by Capt. Henry Berger, it was first sung in Ka-wai-a ha'o Church in November 1874.

Hawai'i pono'i Nana i kou mo'i Ka lani ali'i, Ke ali'i	Hawai'i's own Look to your king. The royal chief, The chief.
Makua lani e Kamehameha e Na Kaua e pale Me ka ihe.	Royal father, Kamehameha, We shall defend With spears.
Hawai'i pono'i Nana i na ali'i, Na pua muli kou, Na poki'i	Hawai'i's own Look to your chief, The children after you, The young.
Hawai'i pono'i E ka lahui e 'O kau hana nui E ui e.	Hawai'i's own O nation, Our great duty Strive.

Maika'i Ka makani o Kohala

Maika'i ka makani o Kohala
I ke ia e ka Inuwai
O ka wai no ia pono ka ua

Wai ka'u lana o ka'a ina

(chorus)
Ko aloha, ko aloha kau mea nui

He makana, He makana n kapu'u wai

Nani wale Niulii Kahela ika la'i
'Ekolu o pua i hiki ma'i

'Alai ia mai e ka ulu hala
Nalo wale ka luno o Hapu'u

Fair are the winds of Kohala
Thirsty winds whose name is Inuwai
O the waters of life giving to all nature
Famed waters spring from the land

Your aloha, your aloha dearly cherished
As a gift, as a gift from the heart.

Calm and peaceful the lovely Niulii
Moving softly, three clouds are coming hither
Beyond the peaceful groves of hala
Lies hidden the summit of Hapu'u

The Beauty of Maunakea

He lei kea kea noho mai
la ika mauna
Ka mauna ki'e ki'e iluna
kukilakila
Kilakila no luna
No luna iko ao
the soft white lei encircles
the crest of the mountain
the mountain high above
standing in great majesty
majestic on high

My friend and I would sometimes roam
The trails of Maunakea
And in the evening we'd come home and see her standing there

The moon moves around her when she sleeps
The clouds stand beside her when she weeps
And I could be forgotten and a thousand miles away
And still I would recall the beauty of Maunakea

Now to any land you go
She will be with you
If you love her like I do
O Maunakea

And I live in the city now
And I see different things
In the nights when I'm alone
She's in my dreams
The wind spins around her when she wakes
The sun spreads its warmth across her face
And I could be forgotten and a thousand miles away
And still I would recall the beauty of Maunakea.

Keola Beamer

KOHALA

The windward valleys of Kohala-Hamakua share a rich blend of ecological and historical relationships. It is a uniquely Hawaiian wilderness and an unparalleled classroom to teach a special sense of Hawaiian identity.

Hawaii Bound's role in North Kohala is a particularly privileged one. We are allowed access to the Kohala Ditch Trail by Castle and Cooke where it is still denied to community members and outside groups. For that reason, the responsibility lies in each ohana and primarily with their instructors to create a group consciousness reflecting a privileged experience, and returning that energy in kind. Trails are maintained only by those who use them and we are indeed the major user. The degree to which we accept a stewardship role here may determine how much longer this trail system remains viable.

Kohala Environmental Briefing (Required Presentation)

1. Explain the potential and real danger of these items:

   a. rockfall, landslides
   b. high water in rivers and flash floods
   c. narrow trails with loose rocks
   d. very steep drop-offs
   e. possibility of continuous rainy weather
   f. rip currents and tides at beaches (buddy system)
   g. shallow rooted trees and plants
   h. water-borne diseases
   i. wild animals (pigs, cattle, dogs)
   j. tree fall
   k. fern overgrowth on trail edges
   l. fumeroles (luameke)
   m. tsunami

2. Stress the importance of the 'ohana staying together along the trail. Any adventures off the trail should be cleared by the instructor.

3. Practice shouting "rock" in response to something falling from above.

4. Explain the dangers of being wet continuously and the need for precautions. (Hypothermia and immersion foot)

5. Explain that there is a procedure for crossing streams. Go into the details of the procedure at the stream.

   a. unbuckle waist straps and loosen shoulder straps. Move around to get a feeling of the awkwardness that results, especially when bending over.
   b. use a guava pole as a third leg upstream when appropriate
   c. cross sideways facing upstream
   d. stay next to each other using poles and each other for mutual support
   e. be extremely careful with small, light people, once water rises above the knees it is difficult to move against it
   f. if the crossing is dangerous because of the level or force of the water, don't cross. Retreat or wait until the water subsides. This may take a day or two on occasion.

6. Explain the potential danger of knocking someone off the trail when putting on or taking off backpacks. Pass people only after both parties acknowledge the intent to pass.

7. In trail clearing, care must be exercised to be sure students don't throw rocks off a switch back trail onto others below.

Activities

Visit: Mo'okini Heiau
Kamehameha's Birthsite
Kamehameha Statue
Waiapuka Tunnel
Plant identification/utilization
Make lei

Collect ferns, watercress, taro, prawns
Explore terrace remains at Honokane Iki and Nui
Investigate Kohala Ditch System
Make lomi sticks, kukui nut lamps, ti slippers
Use and maintain furo at Honokane Nui
Coconut crafts at Honokane Iki
History, geology, songs and legends
Teach map and spacial awareness

Service Projects

Clear trees, rocks and brush from trails
Upkeep and improve cabin facilities
Destroy Blackberries
Clean and upkeep watercress patches
Plant taro huli, sweet potatoes, banana, etc.
Clear coconut trash at Honokane Iki
Fertilize fruit trees
Eliminate rats in cabin facilities
Maintain the well at Honokane Iki

Notes

Kohala Place Names

Ala-kahi- one way, stream and waterfall in Waipio
Āpua - fish basket
ʻAwini - Kohala chief Nae'ole snatched infant Kamehameha and took him to Awini to be raised
Hāmākua - long corner; generally windward
Hi'ilawe - lift and carry, falls in Waipio, see Legend of Hi'ilawe
Hōkū-ʻula- red star, Waimea puu called Buster Brown
Honoka'a - rolling (as stones) bay
Honokāne - valley of Kane - one of four major akua
ʻImi-ola to seek salvation, Waimea church built by Fr. Lorenzo Lyons in 1830's
Ka-luahine Falls- the old lady
Kamuela - Samuel, after Samuel Parker or Samuel Spencer (first postman)
Keawe-wai Spring- Waimanu, waters (belonging to) Keawe a 17th century aliʻi in Waipio
Kohala - a place of destiny
Koko-iki -small blood: District of Kamehameha's birth, first signs of birth
Koʻiawe Stream -light moving rain
Kukui-haele -traveling light, site of important healing heiau and frequent night marchers
Kupehau - standing drenched in mist
Lālākea - named for a kind of shark, white tip
Lau-pahoehoe -smooth lava flat
Makani-ka-hio-wind coming in gusts, Pololū
Moku-puku -contracted, island off honokane Iki
Mo'o-kini -family name traceable through South Pacific
Muliwai - river, also source or the last pond in a stream before the ocean
Pauekolu - end of three, three men lost their lives
Paoa-ka-lani-the royal perfume, island
Pololū - long spear
Puu Laelae - bright hill
ʻUpolu - an island in Samoa, suggests South Pacific roots
Wai-a-ka-laʻe-water of clearness, Pololu falls
Wai-hī-lau-many trickling waters (as a cliff face), Waimanu falls
Wai'ili-kahi -water with a single surface, Waimanu falls
Wai-koloa- duck water, possibly the name of the wind that is dragging water
Waī-manu- bird water
Wai-mea- reddish water
Wai-pahi- water standing on edge as a knife, ʻAwini water source stream
Wai-pio -curved water

Geology - The rocks of Kohala are of two volcanic series. The older Pololu series, composed of thin-bedded olivine basalt, makes up most of the land forms in the windward valleys. The younger Hawi series, composed of harder, oligoclase andicites, emcompasses some of the perimeter of the valleys and is less erodible than the Pololu series. A Hawi andicite flow appears to have flowed into the back of Pololu (near the flume) during a later eruption some 60,000 years ago.

Particularly important in the mountain's geology are the presence of fault clusters and dikes that create and maintain the erosion patterns that form the steep valleys. The initial weathering of the mountain followed natural fault lines near the summit and the remnants of an earlier Pololū series caldera collapse.

A complex system of natural dikes was formed in the depth of the mountain by magma extruding through weak points in the crust and hardening in place underground. These impermiable dikes serve both to direct run-off towards softer rock and to trap large quantities of ground water in the more permiable rock behind the dike. This creates a volume of water held in suspension far above a natural bus at sea level. It is this combination of impermiable strata and suspended groundwater that supplied the developmental potential for the Kohala Ditch.

Both Waipio and Honokane Nui streams have carved long valleys into the heart of the Kohala Mountains, slicing through hundreds of these impermiable strata in their course. The water that collects behind these strata is now released into the growing stream, supplying both Honokane and Waipio with a year-round flow.

To find the ancestral floor of any of the major valleys, visually extend a line down the sides of the valley walls until they meet several hundred feet below the valley floor. As sea level receded during a glacial period, the valleys eroded to meet the new sea level. As sea level rose, the eroded alluvium carried in the stream back up in the valley laying down the present alluvial floor. Subsidance of the land accounts for some of the apparent rise in sea level.

Visualize an imaginary line along the top of any major ridgeline out until it meets the ocean. This will give some idea of the original coast of the Kohala Mountains and the extent of the erosion that has left the present sea cliffs.

Pololū Archaeological evidence suggests that first habitation of Pololū occurred on the coastal dunes prior to 1500. By 1600 construction had begun on taro fields inland. From 1600 to the mid-1800's agriculture sites and house sites were built and rebuilt extending far back into the valley. Diversion ditches were built to handle spring water and the stream was managed to supply water across a good portion of the valley floor.

By 1850 marginal areas were being abandoned and areas near the valley mouth were being leased to non-Hawaiians. A missionary census in 1835 counted 94 full time residents, noting a continuing decline. By 1880 rice cultivation had begun near the mouth of the valley. Taro terraces were modified and a mill and Chinese settlement were constructed near the middle of the valley. A total of 72 acres were eventually put into rice production. The rice market collapsed about 1925 leaving the valley uninhabited by 1935.

One of the last major events in Pololū was the 1946 tidal wave which devastated the entire coastline.

The makai portion of Pololū is now leased from the state and Kohala Corp. to Mr. William Lum for raising cattle and pigs. His "No Trespassing" signs should be respected.

Honokāne Nui The early settlement of Honokāne follows the basic pattern of Pololū before 1600. Taro agriculture was extensive here with virtually every irrigatable piece of land having been put into production. Habitation sites were clustered near to the mouth of the valley while wet terrace complexes extended several miles upstream. The Kohala Ditch Co. tapped the lions share of Honokāne Nui stream in 1906 and agriculture in the valley was abandoned soon after. The preservation of agricultural sites in this valley is remarkable and well worth an excursion to stimulate the imagination.

Honokāne Iki The primary asset of this valley is its ocean accessability. Archaeological remains are not as concentrated as in Honokāne Nui but still much is evident. The house near the ocean belongs to the Sproat family who have managed portions of the Kohala Ditch for three generations.

The makai trail from Pololū to Honokāne Iki is legally accessible to the public. The remainder of Kohala's trails are leased to the Kohala Ditch Company.

ʻĀwini These are the flat lands rising above Honokāne Iki and surrounding the ʻĀwini KDC cabin. Prehistoric population here was somewhat limited and concentrated in ʻĀwini village (location unknown: Kamehameha was said to have been brought here as a young child by chief Naeʻole and cared for until he was old enough to join court.)

ʻĀwini was made government land during the Māhele and a number of tracts were sold as the ʻĀwini Homesteads. In 1898 the ʻĀwini Ranch was in operation and in 1907 it became the ʻĀwini Coffee, Fruit and Stock Co. with Kohala Sugar Co. as proprietors. Remnants of the coffee and fruit trees can still be found, as can the ruins of the Horbottle Homestead near Honokea. A census in 1835 listed ʻĀwini with 13 men, 10 women, and 8 children.

Honopue Honopue is perhaps the most isolated of Kohala's valleys, virtually inaccessable by land and at only certain times by sea, yet it still supported a significant Hawaiian population. In 1842 Waimea church records showed 47 residents in the valley with a single resident lasting until the early 1900's.

Waipiʻo Oral tradition refers to Waipiʻo as having sheltered 40,000 people (a figurative number meaning a great many). It is estimated that at the time of European contact in 1779 about 4,000 people lived in the valley. In 1823 Rev. Ellis counted 1,325 residents and in 1858 Fr. Bond counted 640. Today only about 20 people reside in Waipiʻo full time.

Waipiʻo was a hub of early Hawaiian religion and politics. Early Marquesan navigators may well have settled here and certainly by 1000 AD the valley was significantly inhabited. Aliʻi residents include among others Liloa, Umi, Keawe and Kalaniopuʻu. The first royal Mausoleum in the islands, Hale o Liloa was built near the beach. Pakaʻalana heiau is still partially visible in the sand dunes and once had special powers in the healing of the

upper torso. Also nearby was a pu'uhonua (place of refuge) to shelter offenders of the Kapu system.

The valley has seen extensive taro and rice cultivation, several years of Peace Corps trainees, a series of devastating floods, and tsunami. It now faces spiraling land prices, and uncontrolled tuber rot, and a diminishing farming population.

Waimanu Waimanu is the only one of the windward valleys that is designated as a public recreation area and plans are underway to have it designated a Natural Sanctuary by the federal government. It was heavily inhabited and cultivated prehistorically and was an isolated neighbor to the thriving settlements at Waipi'o. Both Rev. Ellis in 1823 and Isabella Bird Bishop in 1873 have written at length about their early visits to Waimanu, speaking of hundreds of inhabitants in several village locations.

As an isolated and productive ecosystem it was presumably managed by a single ali'i family and worked by a large number of maka'aina (commoners). It is therefore a good environment to imagine early Hawaiian subsistance lifestyle that stood on the fringes of the greater political/cultural center at Waipi'o.

Of interest geologically is the manner in which impermiable strata at the Waimanu gap played a role in diverting surface runoff away from a once larger Waimanu stream into the watershed of Waipi'o. This is a good example of what is known as stream piracy.

When the ocean is calm and the tide low it is a worthwhile adventure to skirt the cliffs beyond Waimanu to the cliff base peninsula of Laupahoehoe Nui. In any kind of rough surf conditions, the passage gets very treacherous and is not advised.

Notes

Mo'okini Heiau Mo'okini is a Luakini, sacrificial, heiau built initially around 500 AD by members of a Mo'okini family. The builders had followed the paths of early Polynesian imigration for hundreds of years, settling in several areas in the South Pacific. They were then in the forefront of the earliest migration to Hawaii coming through the Marquesan Islands.

About 1100 AD a kahuna named Pao'o arrived in Hawaii during a second wave of migration from the Society Islands. During his life he was responsible for introducing a new style of Hawaiian worship, redesigning several heiau and introducing the Pili line of aliʻi from a strong cultural group near Tahiti (Kamehemeha is a descendent in the Pili line). Pao'o rebuilt Mo' okini to its present dimension as he did Waha'ula in Kalapana.

The heiau was a place where aliʻi nui and the kahuna fasted, prayed, and offered sacrifice - humans among them. It was a place of extreme power and kapu for ancient people and although no longer kapu the power is latent in the place and deserves a sense of respect.

The altar is within the walls at the makai end. A processional walkway runs along the Pololū side wall and the Hale Mu (house of the public executioner) lies to the right of heiau entry outside the walls. The large flat stone just makai of the heiau is the sacrificial stone, Papanuileka, where the stripping of human flesh took place.

The heiau is still spiritually tended by a Kahu, or keeper, descendent from the original Mo'okini family.

Ka ʻAina Hanau o Kamehameha Paiea Kamehameha Akahi, the first, was born on the windswept ʻUpolu Point at a place called Kapakai. The precise date is not generally agreed on, but 1753-58 is within range.

His mother, Kekuiapoiwa was travelling with the war and support fleet of Alapai, the aliʻi nui of Hawaii, and was camped with the chiefs at Kapakai when the time to give birth arrived. The child was of aliʻi birth. His father Keoua was a royal descendent of Keawe and his uncle Kalaniopu'u was to become aliʻi nui of Hawaii after the death of Alapai. Kekuiapoiwa was of the Mahi family in Kohala and of sacred birth herself.

From his birth Kamehameha (the lonely one) was a target in the ongoing struggle for leadership of Hawaiʻi. It had been predicted that this was indeed a special child and a potential killer of kings. Since his father was to continue his role in Alapai's army the child was placed in the care of a Kahu (guardian) Nae'ole, a chief of Halawa, Kohala. Legend holds that Nae'ole took the child secretly to ʻAwini and there raised him until he was old enough to join his mother in Alapai's court. Kamehameha returned to Kohala many times in his youth and here learned surfing and other aliʻi arts.

The birthsite is one quarter mile west of Mo'okini heiau and encompasses several stones said to be associated with the act of birth. It is in the process of being developed as a state monument and it is asked that the land be kapu to walk on and its mana respected.

Waiapuka At an elevation of 560 feet in Waikama gulch, the first stream ʻUpolu side of Pololū, lies the zenith of pre-contact Hawaiian engineering. Waiapuka, holes of fresh water, is a tunnel associated with Kamehameha's era that delivered water from Waikama stream through the hillside into

several acres of taro fields to the east.

Lacking metal tools the tunnel was built by sinking approximately 15 shafts four feet in diameter vertically into the hillside and connecting them at the bottom to create a tunnel.

Where tools of stone and wood failed to move layers of stone, large fires were built in the shaft to heat the rock. At the right moment cold water was dumped on the hot rocks with the result of a primitive explosion.

This is worth exploration, particularly as a comparison to the modern Kohala Ditch. The edges of the shafts are quite fragile and caution is advised.

Puukohola The heiau at Puukohola, hill of the whale, is the cornerstone for Kamehameha's Hawaiian kingdom. Built by his army between 1790-91 on the advice of Kapoukahi, a soothsayer from Kaua'i, and dedicated to Ku-ka-ili moku, Puukohola became the focal point for Kamehameha's religious power. This was a wakini (sacrificial) heiau built to overlook the expansive coral reef of Kawaihae and the heiau of Mailekini and Haleokapuni, a shark heiau located in the bay.

The consecration of Puukohola took place in the summer of 1791 with the arrival from Ka'u of Kamehemeha's half-brother and only rival on Hawaii, Keoua Kuahuula. After nearly a decade of conflict over power, Keoua had perhaps recognized the futility of ongoing battle with Kamehameha and agreed to attend the consecration knowing full well its consequences.

As Keoua's canoe entered the bay at Kawaihae, he was struck and killed by one of Kamehameha's chiefs, Keeaumoku (the father of Kaahumanu), and his body taken to the altar at Puukohola and sacrificed. This bold act left little doubt about the sovereignty of the Big Island and began Kamehameha's march to uniting the islands.

A total of eleven human sacrifices were carried out here and the site became the center for Kamehameha's growing western arsenal. John (Olohana) Young lived nearby, serving as advisor and governor of the island from 1802-12. The hieau was razed in 1819 when the kapu system tumbled.

Kepawahaulaula The building of Puukohola was interrupted in 1790 as the combined forces of Maui and Kaua'i began to reoccupy lands held by Kamehameha on Maui and Molokai. These forces continued to the Big Island and were met offshore of Waimanu in a rare naval battle called Kepawahaulaula (Battle of the Red-Mouthed Gun).

Kamehameha's fleet included the captured sloop Fair American and his war canoes, all recently mounted with cannons by Young and Davis. Kamehameha's victory here was one in a series where his quick adaption to western ornaments and battle theory gave him a strong upper hand.

The Kohala Ditch The Kohala Ditch was built between 1904 and 1906 by the leeward Hawi Mill and Plantation owner John Hind. It was designed to tap the steady waters of Honokane Nui and deliver it between 1000' to 900' elevation on Kohala's leeward sugar slope. The Honokane Nui stream can deliver a minimum of 10 million gallons of water a day, proving very reliable, albeit low volume. This water is trapped in natural high altitude dikes farther back in Honokane Nui and released into the stream

through the sides of the valley. The main intake at the ʻAwini Weir then directs it into the tunnel and on down the ditch.

The ʻAwini section of the ditch which creates the waterfall near the main intake in HonokāNe Nui is a series of tunnels and diversions to capture stream runoff along the windward flat of the Kohala Mountains. This was a less successful part of the system since it flowed steadily only in the wet weather.

Ditch construction was carried out mainly by Japanese and Chinese labor, at the cost of several lives. Development of the ditch continued sporadically until the early '60's with full time maintenance families living in Ditch Company houses along the 26 mile right-of-way.

The Ditch is presently an old and minimally maintained series of tunnels, open ditch and wooden flumes that are quietly falling apart. It must be approached with caution, keeping in mind the role it plays in agricultural water delivery for the Kohala community. The trail system is also basically unmaintained except by the restricted number who travel it. This makes our potential for service particularly useful.

Umi, the Peasant King In the 1400's Liloa was aliʻi nui of Hawaiʻi and lived in peace in Waipiʻo Valley. In 1460 Liloa went to Hāmākua for the rededication of Manini Heiau. On his way home he met Akahia-Kuleana, a beautiful woman of royal birth and humble lifestyle.

Liloa and Akahia lay together and conceived a child. Before leaving, Liloa instructed Akahia that if a male child be born to name it Umi and to give him a feather cloak and aliʻi pendant that Liloa left in her care.

A strong and healthy male child was born and raised by his mother and stepfather. As a child he was distinguished in sports and found to be of great compassion. At 20 years old Akahia shared the knowledge of his birthright with Umi, giving him the cloak and pendant as Liloa had instructed. Umi then gathered some belongings and went to Waipiʻo to join his father.

After showing great courage by sneaking boldly into Liloa's highly kapu presence, Umi sat on his father's lap and pronounced his name. Umi was joyfully accepted by his father but Liloa's son Hakau became very jealous of his new brother. In time Umi became a favorite in his father's court and a continued problem for the cruel Hakau.

In later years after the death of Liloa, Hakau became aliʻi nui, ruling with a fierce and evil hand. Umi left Waipiʻo to avoid his brother and went to live at Laupahoehoe and to await developments in the valley.

After several years of Hakau's terrifying rule in Waipiʻo, Umi was persuaded to mount a rebellion and overthrow his brother. With the help of Hakau's Kahuna, Umi's battle with his brother was short. Hakau was killed and his body placed on the heiau as a burnt offering. Thus Hawaii's most cruel king was succeeded by the humble and beloved King Umi.

MAUNA LOA

The Mauna Loa segment of a Hawaii Bound course is the most difficult physical challenge many students encounter. The combination of continuous slope, barren lava, high altitude and variable weather creates a prolonged opportunity to deal with stress. Mauna Loa is often a pinnacle for inspiration and a place of profound confrontation and change.

Trails and alternative campsites are limited on Mauna Loa. We tend to meet a significant number of other hikers on the mountain. Instructors must see to it that we maintain a low impact, particularly at the Mauna Loa and Puu Ulaula cabins. We tend to travel with our own group consciousness, so although here is no reason not to share it, there is every reason not to impose it.

Notes

Mauna Loa Environmental Briefing (Required Presentation)

1. Explain the potential and real danger of these items.

   a. extreme dryness
   b. high winds
   c. snow storms
   d. high altitude
   e. A'a lava
   f. exposure to brilliant sun and glare
   g. lava tubes and bubbles with thin crust
   h. very cold nights
   i. weak ledges at crater edges
   j. lack of visual contrast at night and in snow to see cracks, dropoffs, pit craters
   k. earthquake
   l. volcanic eruption, volcanic gasses
   m. severe lightening storms
   n. lack of water sources
   o. poor trail markers/no trail markers in snow

2. For safety no one may hike alone above the 10,000 ft. elevation.(Rule)

3. Accentuate the absolute necessity to remain together all the time and to be prepared to assist each other.

4. Explain, emphasize and monitor. Everyone should consciously be drinking ample water, one gallon per day, and eating food to provide 3500 to 4000 calories per day of energy.

5. Review all symptoms and measures to prevent altitude sickness, snow blindness and hypothermia. Emphasize:

   a. walking slowly
   b. lock-step uphill gait
   c. need to breathe deeply
   d. need for frequent rest and water stops

Activities

Plant and bird identification at low altitudes (Bird Park, strip road)
Triangulation, utilization to determine position on mountain
Readings and journals
Explore summit, Mokuʻāweoweo cinder cones
Explain island geology, platetectonics, rift zones, vegetation zones, astronomy
Explore alternate campsites at Puu Ulaula
Search and rescue

Service Projects

Build and maintain lūs facilities at Jagger's Cave
Upkeep N.P.S. cabins
Improve sleeping facilities at Ice Cave, Jagger's and Lava Tube
Build or repair ahu's along trails

Mauna Loa Place Names

Ainapo - darkened land (often heavy with fog)
Humu'ula - jasper stone, old Parker Ranch sheep station
Ka'ohe - the bamboo
Kipuka Ki - ti oasis
Ko'oko'olau - plant (Biden spp) used in Hawaiian tea
Lua Poholo - sinking pit
Mauna Kea - white mountain
Mauna Loa - lit. long mountain
Moku'aweoweo - aweoweo = red fish; moku - large land division, reference to red volcanic color
Pohaku Hanalei - stone hurled forth (note key location where districts meet)
Pu'u Ula'ula - red hill

Geology

Hawaiian Archipelago The Hawaiian Islands were formed as a large plate of the earth's crust moved gradually over the top of a stationary hot spot in the Earth's mantle below. Over the last 40 million years the crust has been shifting to the northwest and away from the hot spot which presently lies beneath the Hawaii Volcanos National Park. From 40-70 million years ago the plates were shifting in a more northerly direction, creating what is now the subsurface Emperor Seamounts north of Midway.

The hot spot itself is probably a weak point in the earth's mantle that allows intense heat from the interior of the planet to melt mantle rock and to drive it to the surface through fissures and reservoirs in the shifting crust. This is an ongoing process with new islands presently being built in the ocean SE of the Big Island.

All mountains in the chain are called shield volcanos. These are characterized by a broad gentle slope formed by highly fluid basaltic lava. Eruptions take place from a centralized caldera and associated rift zones with lava that spread widely and cool as thin nearly horizontal sheets. Pit craters, rift zones and a central caldera are characteristic of a shield volcano. By comparison Mt. Fuji in Japan or Rainer in Washington are "composite" volcanos which display a steep profile and a single major eruptive vent.

Mauna Loa Mauna Loa is an active shield volcano with two major rift zones, one to the SW, another to the NE of the summit. It is the largest mountain in the world in terms of land mass, measuring 10,000 cubic miles, and rising 30,000 ft. above the ocean floor (13,680' above sea level). Mauna Loa's present profile overlays two earlier shield volcanos, the Ninoole shield above Pahala and the Kulani shield above Hilo. All of this activity is believed to have taken place over the past 500,000 years.

Mauna Loa is near the prime of its eruptive life. Unlike any of the volcanos to the NW, Mauna Loa has not begun to create large spatter cones of cinder along its rift zones. Cones, or Pu'u, of this kind are visible on the flanks of Kohala, Hualalai, and Mauna Kea and are normally sure signs that the major eruptive phase has slowed and that the volcano is headed toward dormancy. Mauna Loa has yet to enter this phase.

Wilkes Expedition 1840-1841 An expedition lead by Capt. Charles Wilkes was among the first scientific parties to climb to the summit of Mauna Loa. Accompanies by a team of over 200 Hawaiian bearers and a handful of adventuring westerners, Wilkes scaled Mauna Loa with the primary intention of measuring its height in relationship to Mauna Kea. His journal describes a most eventful journey that finally established a rather extensive camp on what he called Pendulum Peak, after a device designed to measure gravity. The ruins of the walls that encircled his camp are still visible approximately 100' south of the present Mauna Loa cabin. (Do not camp there, it is a site on the National Register of Historic Places, and as such is protected from being altered). The Wilkes Expedition was certainly the best equipped party every to visit Moku-aweoweo, but faced a long string of desertions by ill-prepared and unaccustomed Hawaiian bearers.

Wilkes spent several months mapping and describing the changing landscapes of the Kilauea area. While he was there Dr. G. P. Judd, the missionary doctor, came very near to losing his life. Judd had descended into a

small crater to collect a sample of molten lava with a frying pan secured to a wooden pole. Just as the sample was being taken Pele roared and the lava lake at Judd's feet surged forward to cover his retreat. Were it not for one of his Hawaiian assistants, who withstood the intense heat to pull Judd to safety, Pele would have claimed a sample of her missionary opponents.

Mauna Loa Observatory The Mauna Loa Observatory is part of the National Oceanic and Atmospheric Administration (NOAA) of the Dept. of Commerce. It is an atmospheric monitoring station designed to do background monitoring for global quanities of CO_2, ozone, and other particulates in our atmosphere. For twenty years it has set the baseline for the composition of our global atmosphere and is designed to study man's contribution to it and to the weather it creates.

Recording equipment is very delicate and any human dust that cars or hikers kick up is recorded by their instruments. They ask that we be mindful of their instruments. They ask that we be mindful of their mission and that we minimize our impact as much as possible.

Caution. Several large dish antennae at the observatory emit high intensity radio waves and can cause cell damage if you stand directly in front of them. Keep students away from them.

Dr. Thomas Augustus Jagger, Jr. Dr. Jagger was a well known volcanologist in the geology department of MIT when he came to work in the new field of seismology in Hawaii. Jagger arrived at Kilauea in 1912 and was instrumental in developing the Hawaiian Volcano Observatory. He was a founding father for the science of Hawaii's volcanos and was responsible for establishing and improving trails and accommodations on both Mauna Loa and Kilauea. The concrete foundation on the rim of North Pit is all that remains of Jaggers cabin. His name is attached to the cave nearby that campers have long used as summit accommodations. Jagger retired in 1940 and was a U.H. research fellow until his death in 1953.

Puu-Ulaula Cabin The cabin at Puu-Ulaula was built in 1924 by an all black brigade of Army soldiers who also participated in the construction of the Mauna Loa trail. It is on the National Register of Historic Places.

Mauna Kea Mauna Kea is the site of the largest adze quarry in the Pacific. At approximately 11,000' on its southern slope a large outcropping of very dense basalt supplied the best raw material for stone tools in the islands. Today large mounds of basalt flakes as much as 10' high are scattered along the slope where skilled Hawaiians did the rough chipping of adze blanks before they were carried down the mountain. Mauna Kea adze were highly prized and apparently were used for trade in various parts of the Pacific.

Other early groups to have scaled the summit of Mauna Kea include a crew from the H.M.S. Blonde who had recently returned the remains of King Kamehameha II and Queen Kamamalu from England where they had died of measles in 1824. Their captain, George Anson, the seventh Lord Byron(cousin of the poet) also explored Kilauea and the ledge between Kilauea and Kilauea Iki presently bears his name.

The botanist David Douglas, for whom the Douglas Fir tree is named, also made the summit of Mauna Kea shortly before he was killed in a wild

cattle trap near Keanakolu in 1838.

Today Mauna Kea is the earth's clearest window to the universe. The observatories on the summit belong to NASA, the British government, and the Canada, France, Hawaii Telescope Corp. among others. Much of what we learn about our universe will be discovered on Mauna Kea.

Hawaii Volcano National Park The Volcano's National Park recognizes the Hawaii Bound program and welcomes our use of park facilities. A strong relationship here is important to the school and will require the following:

1. Vigilance about checking in and out of the park, returning keys, etc.
2. Maintaining low impact camping, particularly in terms of other hikers. We bottleneck both at the summit and Puu-U'aula cabins and need to minimize our impact on others.
3. Early communication with Park officials in the case of emergency or evacuation within Park boundaries.
4. Open and casual communication regarding conditions in the back country will help us keep them in touch with our Park. They appreciate whatever information they get.

National Park Environmental Theme Interpretation

Geological

Platetectonics
Uniqueness of Hawaiian Volcanoes
Catastrophe in the landscape, crater areas, coast pali, etc.
Influence of geological process on character of vegetation; changes in vegetation with elevation and significance of Kipuka

Biological

Role of isolation in character of ecosystems
Role of exotics in ecosystem
Resource management; pigs, goats, aggressive exotics

Cultural

Land use, ahupua'a
Polynesian religious concepts, Wahaula hieau

Artistic - Volcano Arts Center

Creativity adapting to geographical place and artistic ecosystem
Reflections of art in the landscape
The changing role of art in interpretation of natural and cultural resources

Notes

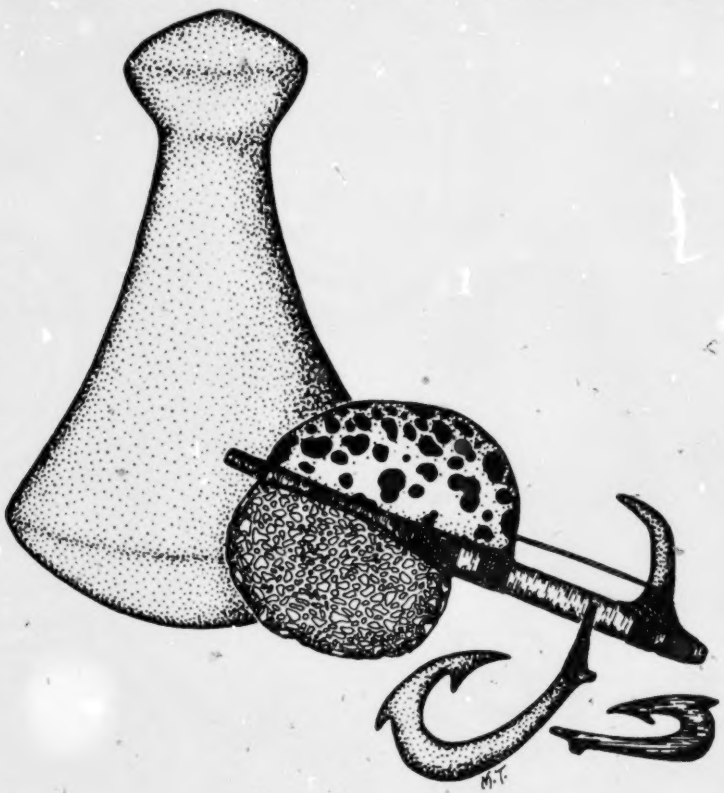
KA'U DESERT

The Ka'u Desert lies in the rainshadow of the Kilauea volcano shield, receiving less than 20" of rain a year. Isolated by a series of high pali, the desert with its 90^{o}-100^{o} highs and occasional strong winds is a classic desert environment. The most important cultural and environmental topic in Ka'u is water; the lack of it, where to find it, and how dependent life is on it.

Since the majority of our group expeditions take place in the desert, students need to be thoroughly briefed and feel confident with a whole range of hiking, camping, and group processing skills. Expedition is a time to test those skills against a variety of new elements without instructors to aid in the process.

The design and direction of the desert expedition is basically an instructor's decision. It should be well thought out and intentional, with significant concern for group challenge and group safety. Cross country orienteering is an effective team exercise in the Ka'u.

Desert land is decidedly unstable, particularly on the pali and along the coast. Students should be well briefed about the pressures that caused the sinking of Halape in 1975 and be aware that the process is ongoing.



Ka'u Desert Environmental Briefing (Required Presentation)

1. Explain the potential and real danger of these items:

   a. extreme dryness
   b. extreme exposure to sun and reflection
   c. hot air temperature
   d. unpotable water in catchments
   e. unpredictable severe rip currents on coast
   f. rockfall in caves and along pali
   g. tsunami and high surf
   h. lack of water sources
   i. earthquake
   j. eruption
   k. fumes, gasses, steam vents
   l. ground cracks and fissures
   m. very thin crusted lava
   n. high velocity winds
   o. grass fire potential

2. For safety no one may hike cross-country in the desert environment alone. (Rule)

3. Emphasize the importance of the 'ohana or sub-groups of remaining together.

4. Explain, emphasize and monitor the absolute necessity of everyone always beginning a days travels with one gallon of water (4 canteens). Drink ample water every day. Explain about perspiration, wind, heat and head cover as factors in heat related illnesses.

5. Review symptoms, treatment, and prevention of heat stroke and heat exhaustion.

6. Explain the intended route explicitly and the activities intended for this area.

7. Explain evacuation procedures and shortest routes, timewise, to reach help. Explain the location and use of park personnel in an emergency.

8. Explain about the native fishing rights northeast of Keauhou.

Notes

Activities

Map and compass
Group expeditions
Teach desert ecology and geology
Plant identification
Teach waterskills, fishing, diving
Explore Hawaiian sites at Keauhou, Halape, Kalue
Petroglyph caves
Summit of Puu Kapukapu
Collect fresh water from brackish ponds
Build solar still
Locate old Pulu factory near Napau Crater
Teach search and rescue techniques
Visit the National Park Headquarters to view volcano films
Visit Wahaula Heiau

Service Projects

Rebuild ahus and trail upkeep
Maintain shelters
Plant and water new coconuts, sweet potatoes and gourds at Halape, Kalue and Keauhou

Notes

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Volcano and Ka'u Desert Place Names

'Āinahou - new land, Shipman Ranch
'Āpua Pt. - fish basket, a village here destroyed by 1868 tsunami
Halapē - crushed missing, gourds grown here were completely buried by shifting winds, people not knowing of them would "miss" them
Halema'uma'u - house of ama'uma'u fern
Hilina - struck (by the wind)
Ka'aha - the assembly
Kalapana - announces a noted place
Kālue - hanging loose
Kamakai'a - the fish eye
Kapāpala - the papala tree
Ka'u - ancient name that connotes in Samoa (Tau) the breast or bosom
Keana Bihopa - the bishop's cave
Keauhou - new era or new current, village destroyed in 1868 tsunami, cattle landing of Ainahou Ranch
Kipuka Ahiu - wild, untamed, the name of a wind, oasis
Kipuka Nene - goose oasis, Nene is state bird
Kilauea - spewing, much spreading (as lava)
Makaophui - eye of the eel
Mauna Ulu - growing mountain
Nāmakani Paio - the wind coming in all directions, conflicting
Nā-Puu-o-nā-Elemākule - hill of the old man
Pauahi - destroyed by fire
Pepeiao - ear, also a kind of edible fungus
Poli-o-Keawe - bosom of Keawe, or cove of
Puhimau - ever smoking
Puu Kaone - cinder hill, a place of early desert agriculture
Puu-Kapukapu - regal hill, a place of power
Waha'ula - red mouth, Luakini heiau built by Pa'ao in the 13th century

Notes

Geology Kilauea is composed of two volcanic series, an older Hilina series and a presently active Puna series. Halema'uma'u fire pit has been the primary center for eruptive activity for several hundred years with continuing activity along the rifts to the east and SW. Several smaller parasitic shields have been built on the rifts including Mauna Iki and the most recently Mauna Ulu (1969-74).

A complex system of faults lies to the south of Kilauea crater, some of which are the extensive pali that stand above the Ka'u Desert. These towering pali are caused by a combination of pressures. First is an upward pressure caused by magma that swells the summit Kilauea. This pressure translates into extensive faulting south of the rift zones since Kilauea is buttressed in place by Mauna Loa to the north and west.

As the mountain swells along the SE slope and fault clusters expand, the natural force of gravity takes over and begins to slide large sections of land seaward. It is the combination of upward pressure and downward gravity that over centuries has created the Hilina Pali and Hōlei Pali. It also creates the basic geological instability of the Kaʻu Desert. The 1975 sinking of the coastline by as much as 14' that claimed the lives of two campers at Halapē is part of this ongoing process.

Notes

Keauhou Keauhou was the most remote community on the Ka'u coast. Isolated for miles in either direction by rocky trails, the protected bay at Keauhou became an important link for commerce. A small settlement near the bay subsisted on cultivated fields of gourds and potatoes, brackish water, and a plentiful ocean. In the uplands beyond the pali of Hōlei and Hilina lay the lands of Pele and the spirits of the forest. Keauhou was a place to land and to travel from more than it was a place to live.

Kamapua'a landed at Keauhou to court Pele in her upland domain
Legends about the 'Olohe (ghost) that lived in the isolated Hōlei pali thrived in the imagination of travelers on lonely desert trails
Pulu, the fiber of the hapuu fern, gathered intensively from the upland forest, was brought here to be loaded onto schooners that anchored offshore in the early 1800's.
Rev. Ellis visited here in 1823 and talks of heat and barrenness; freshwater was foremost on his mind.
A tidal wave in 1868 virtually eliminated what remained of Keauhou village.
Shipman's 'Āinahou Ranch imported cargo and loaded cattle here in the early 1900's.
In 1975 the entire coastline sank as much as 14' in an instant, claiming the lives of two at Halape one mile away.

Today Keauhou's fishing rights belong exclusively to the Hawaiian residents of Kalapana. A well preserved fishing shrine lies near the trail towards Halapē.

'Olohe Legends of Hōlei Pali The people of Kalapana tell tales of dry overland trips into the remote desert region below Hilina and Hōlei pali. These were long, lonely journeys in a foreboding landscape, offering little scenery and even less comfort. The towering pali and barren lava plains became the residence of outcasts, animals, and unwelcome spirits. Here they hid out, awaiting a chance to pillage on the coastal villages or harass travelers as they passed the isolated cliffs.

One of these 'olohe, ghost spirits, had two beautiful daughters to do his bidding. As travelers approached the daughters would pretend to be traveling as well, stopping along the trail to talk with and feel out the passersby for food or possessions. If the travelers were poor and of no consequence the sisters would return to their father and say "kai ho'i" (a turning tide) and the traveler would pass unhindered.

If, however, the sisters found a lone traveler whose possessions they desired the comment to their father was "kai make" (low tide). With that the 'olohe would attack and kill the traveler, taking his possessions and disposing of the body where it was never found.

Keoua's Footprints After 1782 the island of Hawai'i was divided into three maku, ruled by Keoua in Ka'u, Keawemauhili in Hilo, and Kamehameha in Kona and Kohala. Kamehameha was custodian of his family war god Kukai-ili-molu (ku the land snatcher). Keoua had inherited his father's, Kalaniopuu, right to rule, and while Keawemauhili had been a determined ally of Kalaniopuu he refused to realign his allegiance.

In 1790 Kamehameha was on Maui fighting Kahekili's troops in the central valley. Taking advantage of his absence, Keoua marched north to Hilo where he engaged and killed Keawemauhili in battle. From there he continued

north to ravage Hamakua and Kohala. Kamehameha returned to protect his land, engaging Keoua at Pāauhau. A battle there was indecisive and both sides disengaged and returned home.

As Keoua's army passed through the volcano district, Kilauea erupted in an unusually explosive style. The land SW of the volcano was covered with a hot gaseous layer of yellow pisolitic tuff and a portion of the army was burned and suffocated, leaving their footprints in the ash. Approximately 80 warriors were killed and for Keoua it appeared that the gods had spoken. For him the loss of men was not as devastating as was the defeat at the hands of Pele.

Notes

OCEAN ENVIRONMENT

Three facts should govern our training and activities at the ocean. First, it holds great potential for danger so extreme care must be taken to lead an expedition there safely. Second, there are very few beaches left for our use and their number is dwindling. We must receive permission for each visit, therefore, we must be excellent stewards of the beach resources. Third, the ecology of an 'ohana at the beach is a marvelous opportunity to live in balance with nature, giving and taking only what is necessary and caring for the land and sea.

Environmental Briefing

1. Explain to your 'ohana the special privilege we have in using the shoreline and launching sites so they respect person and property.

2. Explain the potential and real hazards of these items:

   a. deep water
   b. wave action, shore break, rip tides and prevailing current
   c. wana, coral, eels, sharks, other poison fish and shells
   d. extreme exposure to sunlight, reflection and heat
   e. swells
   f. high surf
   g. tsunami
   h. wind actions, diurnal effects, rapidity of wind shifts
   i. spears and slings

3. Explain the details of the trip plan

4. Explain evacuation routes from each campsite

5. Explain safety precautions and preventative measures to be taken

   a. everyone wears life jacket properly (Rule)
   b. buddy system in water (Rule)
   c. electronic signal device in each canoe
   d. treatment for wana
   e. need to consume ample water daily

6. Explain our mandatory use of the portable toilet at the ocean
7. Explain the need not to disturb Hawaiian sites, climb on walls or remove stones

8. Each group must practice paddling and steering skills and have successfully righted an overturned canoe before leaving the drop-off point on their ocean expedition.

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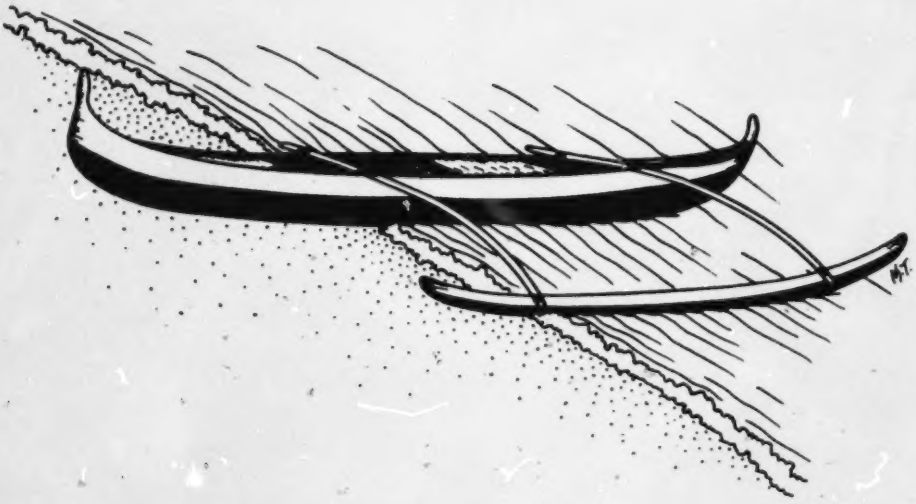
Activities

Drownproofing, lifesaving skills
Simulate water accident
Tidepool exploration
Plant, fish and limu identification
Coconut crafts
Diving - day and night snorkling
Teach and practice canoe skills
Explore holua slide, village remains, trails
Throw and set nets
Build imu for cooking
Stress resource conservation
Construct and use a'ama snares
Fish with poles and line

Service Projects

Beach maintenance, pick up trash
Clean wells
Plant coconut trees, sweet potatoes, etc. Water plantings with brackish well water
Clear stones from canoe landings



Non-swimmers The following is a checklist for helping non-swimmers to feel comfortable in the water:

Relaxing in the water is the key to enjoying it.
Face in the water, hold breath, blow bubbles (a mask may be helpful).
A mask and lifevest may be helpful to encourage confidence.
Get in the water with the student and keep the atmosphere comfortable and relaxed.
Drownproofing

Drownproofing This is a method of staying afloat in water for an extended period of time. It must be taught to all students.

Basic Assumptions:

1. Most people will float at the surface naturally when holding their breath.

2. There is no need to keep a 12 lb. head out of the water at all times to survive.

Basic Drownproofing procedure:

1. Lie face down in the water and relax with arms extended to the sides, elbows bent. Legs will probably dangle below surface, knees bent. Hold breath and float.

2. To breath, draw hands together in front of the face. While exhaling, lift the head only high enough above surface to inhale through the mouth. Hands press down while head is lifted.

3. Resume face down, arms extended and relax.

4. A leg kick helps lift the head up if necessary.

5. In cold water it helps to keep armpits shut and legs together to conserve body heat. Clothes help a lot too.

6. Minimize movement to conserve energy.

7. People who sink rather than float need to practice keeping their back parallel to the water surface as they hover near the surface. This is best done with slowly repeated scissor kicks. Hands may have to make two strokes downward for each breath cycle.

Snorkeling Don't take snorkeling ability for granted, test each diver and their equipment.

Equipment - functional/non-functional, well fit
Effectuve use of the snorkel.
Equalizing pressure - clearing the ears
This is important for all students to know in order to avoid inner ear damage. Have students practice it to depths of 10 to 15 feet.
Entry and exit from the water, plan a route, be aware of surge and use it to your advantage. Never turn your back on the ocean.
Spear safety and ocean conservation, discuss what kinds of fish to spear and basic conservation. Stress enjoyment and appreciation rather than killing fish.

Use the buddy system at all times, and enforce this discipline on snorkelers and food gatherers.

Lifesaving Instruct all students in prevention of water accidents, self-help, and simple rescue of others. Don't try to instruct any water rescue.

Prevention

1. Don't swim until large meals are substantially digested.
2. Use caution in entering and leaving ocean.
3. When locals are around ask them about rip tides and other dangers.
4. Don't swim immediately after heavy exercise.
5. Never, never swim alone.
6. Stay reasonably close to shore.
7. Never leave the canoes unattended, even when anchored.

Self-help

1. Release calf and foot cramp.
2. Clear diving mask of water while underwater.
3. Knows relaxing swimming strokes and drownproofing.

Simple rescues

1. Paddle canoe to person needing help.
2. Reach person with object, i.e. a canoe paddle or a life jacket.
3. Two persons lifting unconscious person into canoe.
4. Fireman's or Saddleback carry of person through surf.
5. Tired swimmers assists.
6. Teach techniques of helping from the beach.

    a. how to spot and guide rescue boat to a victim from shore.
    b. how to assess rescue equipment available on beach.
    c. how to form a human chain to rescue someone from the shore break.

Artificial Respiration - Mouth-to-Mouth

1. Clear foreign matter from mouth and airway
2. Tilt head to displace tongue
3. Pinch nose (seal mouth)
4. Blow four rapid deep breaths into victim's lungs
5. After initial breaths supply 1 breath every 5 seconds, 12 per minute
6. Watch victims chest for movement upward during inhalation
7. Listen for exhale and repeat
8. Do not discontinue until qualified help arrives, the victim revives, or is dead beyond doubt.
9. When heart has stopped use CPR, 5 compressions to 1 ventilation (60 per minute)

Hawaiian Canoe Terms

Wa'a	The hull of the canoe. The entire canoe hull and outrigger combination is refered to as wa'a kaukahi. The double hulled canoe is wa'a kaulua.
Hope	Stern
Ihu	Bow
Manu	Covered deck of canoe. This decking gives the Hawaiian canoe its characteristic shape. The manu houses the flotation compartments.
Mo'o	Gunwale of canoe, usually an added section sewed on for extra freeboard.
'Iako	Outrigger booms used to hold and stabilize the ama.
Ama	Float attached to the iako; also on a double hulled canoe, the port hull.
Wai	Wooden cross member in canoe to which 'iako is lashed.
Hoe	The Hawaiian paddle.

Lashing

Long cotton lines are used to lash 'iako to the wai. Shorter cotton lines are used to lash the ama to the 'iako. When placing the 'iako on the ama use a rubber pad at the contact point to reduce slippage and also use coconut fiber found on the beach to fill any gap between the iako and ama.

When lashing keep a constant tension on the line. Lash with dry line so that when complete it can be splashed with water to cause shrinkage and tighten the lashing even more.

The ama is always lashed to the left, or port, side of the wa'a. The bamboo poles are lashed to the iako far enough from the hull to permit easy paddling.

Lashing 'Iako to Wai

Choose proper iako. Each iako has a bevel on the end where it meets the ama. Get two 'iako with opposite bevels; the bevel fits the upward sweep at each end of the ama, so the forward 'iako has a forward rising bevel, the aft 'iako has an aft bevel.

Place the 'iako in position directly above the wai. Extend the end of the 'iako 4 to 5 inches beyond the starboard mo'o. Since the ama needs to be toed in slightly to correct for ama drag the forward 'iako needs to be lashed with two inches more overhang than the aft 'iako.

To begin lashing string one end of the cord through a hole in the mo'o on the ama side and attach it to the wai with a bowline. Outside the mo'o take one wrap under, around, and over the 'iako with the long cord. The cord is best kept untangled by stretching it down the beach on the ama side of the canoe.

Make a bite in the cord and put it through the hole opposite the one it came out of from securing it to the wai. Stretch the cord over the wai and through the hole on the opposite side of the wai. The line goes through the hole, under the 'iako, around and over it, and back into the hole.

As the line crosses back over to where you started, spread the two lines so they are several inches apart. Once the line is tight through the hole, cross under the 'iako, around and over it to the hole on the other side. A loop is then sent through the second hole and over the wai again to the opposite hole.

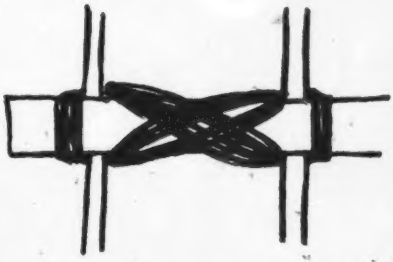
This manuever is repeated, alternating sides to match the pattern that has already been established, until there are 12 winds around the 'iako.

Then pull all the line through the hole into the canoe. Gather the string into a ball now for convenience. Now, by wrapping the line over the 'iako and down under the wai, the 'iako is lashed tightly to the wai. Pulling tightly, proceed with these wraps until you have 5' of line left.

Thread the end of the line through the space between the 'iako and wai and circle the lashes, pulling tightly to take all of the slack out of the line. Go around until you have about a foot or so of line left and secure it on an easily accessable line with a couple of half-hitches or a clove hitch. Don't tighten this knot too much as it will be difficult enough to untie when wet.

Fore or aft view of 'iako lashed to the wai.

Top view of 'iako lashed to the wai.



Lashing 'Iako to Ama

Bring ama into position under 'iako and place rubber piece and coconut fiber at the contact point.

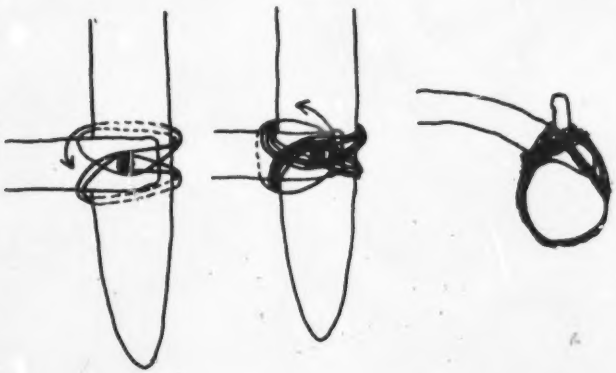
Secure the lashing line to the 'iako stub-pole with a clove hitch.

From there wrap down and under the ama and back up the inside, around the stub-pole and back down under the ama. Bring the line up the inside of the ama on the same side of the 'iako as the first wrap.

Wrap down and under the ama and this time bring the line up the inside of the ama on the opposite side to the 'iako. Go around the stub-pole and down the outside of the ama and again up the same side of 'iako. Note that you should make two wraps on each side of the 'iako as you lash. This results in a cross-weave pattern appearing directly in front of you as you lash.

After about six to eight wraps on each side of the 'iako begin wrapping the line around the stub-pole, back behind and underneath the 'iako, and back out to the stub-pole. This wrap should be extremely tight.

Secure the lashing to the stub-pole with several clove hitches. Always test the strength of the lash by giving several hard blows with the heel of the hand against the 'iako and the ama. No movement in the joint should occur. If any movement occurs untie and begin again.



Canoeing Briefing (Deliver just prior to launching an expedition)

Winds

1. Watch for strong offshore winds
2. Be aware of any quick changes of wind or weather
3. If wind begins to become a factor in steering, hug the coastline and prepare to land if necessary.
4. If canoes are being blown out to sea, put out your sea anchor and activate emergency radio beacon and flares. After dark use flares and light beacon.

Waves

1. Avoid areas where there is a large shorebreak.
2. Beware of boils and peaks that indicate submerged rocks.
3. Always face breaking waves with the bow or stern, never broadside.

Landings This is a most vulnerable time both for canoe damage and student safety.

1. Check all landing spots before attempting them. Watch for shallow rocks and surge patterns.
2. Come in slowly and avoid running hull onto beach with full canoe.
3. Carry, don't drag, canoes to a point above the high water mark and place it on an even surface.
4. Supply plenty of people power to lift and protect all parts of the canoe whenever they are being moved on land.

Anchoring Instructors must be responsible for checking every anchoring and should do so personally.

1. The canoes are equipped with sand anchors which require plenty of scope to be secure.
2. Never leave anchored canoes unattended.
3. Often it is necessary to dive to free the anchorline from coral. Don't anchor deeper than your own diving capacity.

Equipment

1. Canoe must have paddles for all persons plus one extra.
2. All persons must wear a life jacket.
3. Bailer and emergency equipment bucket must be tied into canoe in case of a huli.
4. Anchor and anchorline must be lashed to the wai in case of huli.

Paddling

When paddling on the right side of the canoe, the right hand holds the paddle at the neck, just above the blade. This hand is refered to as the control hand. The left hand holds the paddle at or near its top end.

Reach forward with the paddle and with the blade perpendicular to the canoe place it fully in the water. Pull back on the control hand, straighten up the body and press back with the control hand.

At the end of the stroke the paddle will be out of the water and behind you. From this position bring the top hand across in front of you and reach forward again. Feather the paddle horizontally as it moves forward to avoid friction with a headwind and slapping the waves.

The crew paddles alternately on the right and left, changing sides in unison every 12 strokes. The changes are called by the number 2 person, who calls "hut" on stroke 11. On stroke 12 the entire crew responds by calling "ho" and everyone changes sides without losing a stroke.

An effective crew learns to paddle in unison and at a pace that is comfortable for all. The choosing of crews and the placement of each within the canoe should be both intentional and flexible. The person in seat #1 sets the pace of paddling and watches for obstacles. The paddler in seat #2 calls the changes of sides. The strongest paddler should be seated here.

Counting in Hawaiian

1.	'ekahi	6.	'eono	11.	umi kūmākahi
2.	'elua	7.	'ehiku	12.	umi kūmālua
3.	'ekolu	8.	'ewalu	13.	umi kūmākolu
4.	'eha	9.	'eiwa	14.	umi kūmāhā
5.	'elima	10.	umi	15.	umi kūmālima

Kona Place Names

Alikā - possibly Hawaiian for Alex, or to dig, thrust
'Anaeho'omalu - restricted mullet
Hapuna - the spring
Ho'okena - to satisfy thirst
Ho'ōpūloa - put in together (for a) long (time), village destroyed by lava in 1926
Honoka'ope - the bundle bay
Honokōhau - bay drawing dew
Honomolino - calm bay
Kailua - two seas (probably currents)
Kaki'o - small cut, impetego
Kaloko - the pond
Kapalaoa - the whale's tooth
Kapu'a - the whistle, an oppressive chief Koa-hala lived here and was stoned by his people for overburdening tasks.
Kaulanamauna - mountain resting place, a place with food where travelers rested.
Kawaihae - the water of wrath (people are said to have fought for water from a pool near here).
Ka'ūpūlehu - roasted breadfruit
Keāhole - the ahole fish
Keawaiki - the small passage
Kīholo - large fish hook, name of Kamehameha I fishpond destroyed in 1859 lava flow.
Kona - leeward
Luahinewai - old lady's water
Makalawena - release of glow, legendary hero Ka'miki destroyed some ghosts that fished here at a spot called Ku'una-a-ke-akua (net setting for ghosts). These ghosts made mullet and goatfish bitter.
Manukā - plundering, name of a legendary robber
Milolii - fine twist as in sennet, village one known for fine sennet, also may be small swirl as a current, also a small variety of milo (Hibiscus family).
Okoe - name of murderess living at Ho'opuloa, she and husband killed passersby.
Pāpā - forbidden
Puakō - sugar cane blossom
Pu'uhonua - place of refuge, earthen hill
Pu'ukoholā - hill of the whale

Ko'a or Fish Heiau

Fishing shrines are located near the waters edge. Here offerings are made to Ku'ulakai and to the aumakua of a fisherman or his village. The Ko'a was usually a simple structure with a fairly large and upright stone predominant on the structure. A haku or guardian was assigned to make offerings and tend the shrine.

The first fish of a catch was offered at the Ko'a. When caught, its tail was cut off to designate it as the offering. Sometimes, a Ko'a was sacred to a certain fish as the Ko'a near Kapua is to Akule.

Another form of ko'a is called umu. This is a variation of the word imu and refers to a pile of stones that was intentionally dropped into the water by canoe at a given location offshore. This marks a location where fishermen would feed schools of manini, akule, etc. that frequented the umu. Fish were often trained to expect a meal of sweet potatoe or ulu scraps by tapping the hull of the canoe with a hard stick each time they were fed. The fish below would then rise to the surface expecting a meal and were periodically harvested with hooks or nets.

The umu was intentionally cultivated by early fishermen and supplied a reliable location for catching fish when they were scarce elsewhere. After fish were caught at an umu, the fishermen would always return to feed the fish that remained to keep the cycle going.

Ku'ula Legend

Ku'ula possessed a human form and had miraculous power (mana kupua) for controlling fish at this will. He married Hina-pu-ku-i'a and had a son Aia'i.

After killing a famous eel from Moloka'i, who had ravaged Ku'ula's fish ponds near Hana, Ku'ula was falsely accused of cheating his chief and was burned with his wife and home by his neighbors. The chief had been tricked by a clever devotee of the eel.

At the moment of Ku'ula's death all the fish in the water nearby vanished. Ku'ula and Hina were translated into a god state leaving behind instructions to be carried out by their son Aia'i.

Aia'i escaped the burning incident and was given refuge by some kindly people and repaid the hospitality by erecting a fishing Ko'a in his father's name, returning the vanished fish. Aia'i then continued spreading the recognition of his father and erecting fishing Ko'a.

"Ai Noa!" By 1819 the kapu system that governed virtually all interaction in Hawaiian culture had begun to crumble. The disobedience of new foreigners in respect to the kapu had planted continuing seeds of discontent with what had become a very oppressive religious system. After the death of Kamehameha, who founded his kingdom on the power of his gods, his son Liholiho became King. Kaahumanu, Kamehameha's favorite wife took the position of Kuhina nui and co-ruler.

Six months after Kamehameha's death at the urging of Kaahumanu and his true mother Keopuolani, Liholiho intentionally sat down to eat with these two women at a public feast in Kailua, Kona. This publically broke a

long standing kapu on the act of males and females eating together. The cry of "Ai noa!" (free eating) spread through the islands and was followed by a decree that all the old gods and their heiau be destroyed.

Liholiho's brother, Kekuaokalani and his faithful wife Manono reacted strongly to the actions of the young king by mounting an attack in defense of the kapu system. The battle of Kuamoo, near Keauhou, Kona was the scent of their ultimate defeat with both Kekuaokalani and Manono being slain in battle.

The end of the kapu system is a milestone in Hawaiian history and came at a time when the pace of Hawaii's change was accelerating in an entirely new direction.

Mamala hoa Kanawai

In 1783 Kamehameha was involved in a series of harassing raids on the people of Puna and Hamakua. On one such raid in Puna the young chief leaped from his canoe and attacked a group of innocent fishermen. In the chase Kamehameha got his foot wedged in the lava and was struggling to get free. One of the fisherman seized the opportunity and returned with a canoe paddle to attack the chief. By the time help came for Kamehameha he had been severely beaten and the paddle splintered about him.

The incident left a profound effect on the young chief. When he became king he proclaimed that all commoners working or traveling in his kingdom for peaceful reasons would have free passage. The law was known as Mamalahoa Kanawai (Law of the Splintered Paddle). Today the road around Hawaii is called the Mamalahoa Highway.

Holua Slides The holua slide at Kapua Bay is a well preserved example of the stone runways that the alii of old Hawaii used for competition. It was an arena for recreation and a place to prove individual courage and dexterity. Holua sledding was a sport reserved for the alii and the remains of old runways are quite common along the Kona coast. Runs varied in steepness and length depending on available slope, sometimes stretching as much as 200 yards down a hillside. The surface of the runway was finished with small stones and covered with a layer of dried grass to make it slick but not nearly safe.

The sleds the alii used were from 7 to 18 feet long and normally not more than 6 to 8 inches wide. They had two hardwood runners and a narrow platform suspended above it that was sometimes covered with lauhala matting. The sled was held in front of the contestant as he ran down a short in-run leading to the slide. At the right moment the rider dove onto the sled and sped off down the slope. The sport was judged on speed and distance and was often observed by large crowds.

No protective clothing was worn and a single wrong move might find the sled and rider sailing headlong into the sharp lava off the side of the slide.

A photograph and sketch of the Kapua slide is on display just inside the main room of the Bishop Museum, along with an original holua sled.

LOGISTICS

Introduction The logistical staff provides essential support to the courses in the field and at Basecamp. Instructors and students provide essential support to the logistical team to help them accomplish their tasks. To make the logistical experiences of the course safe, efficient, and satisfying for all concerned it is necessary to raise the awareness of everyone involved of these factors.

> An 'ohana emerging from the wilderness is basically focused on itself and its experience. The resupply is anticipated as a time for mail, a fresh meal, a shower, clean clothes, and a break.
>
> A logistical person or team working with an 'ohana is concerned with controlling the situation to minimize disorder and wasted time, meeting a time schedule for moving the 'ohana, meeting safe driving requirements and completing the task without dozens of loose ends and details to clean up.

To make all logistical experiences productive, pleasant and safe, both parties need to arrive at any appointed meeting place thoroughly briefed, prepared for the experience, and willing to be somewhat flexible due to extraordinary needs that may arise. Accurate and smooth communication is so vital to good logistical support, it is given separate treatment here.

Resupply Procedures

Prior to each resupply, brief the 'ohana on the need for organization, effeciency , and care for detail.

Give very explicit direction about what kind of clothing and equipment to bring into the next expedition.

Immediately upon meeting, the logistical person and the instructor must meet to brief each other on respective plans for the resupply, changes of plans, or situations affecting the resupply.

The instructor should then give a detailed briefing to the 'ohana on the resupply plan, including all details and estimates of time.

During the process the instructor should supervise students to assure care in handling gear properly, packing methods, and efficient use of time.

Remain with your 'ohana during supply, resupply or check-in procedures to answer questions and assist.

The instructor should pay very close attention to detail items, like returning broken equipment, labeling equipment needing repair, distributing and collecting mail, assuring that the group equipment is accounted for, and all ocean equipment is returned in good condition.

Logistical person takes the responsibility for having students sign equipment sheets on initial supply, supplying the fresh meal at resupply, restoring fuel, and medical kit supplies and delivery of mail.

Loading canoes is under the supervision of the logistical person.

Communication Both logistical workers and instructors must take care in delivering messages to and from the field. All messages should be in writing; it is confusing enough at resupplies without having to remember verbal messages. When equipment is sent back for repair be explicit about the defects in writing and attach the message to the equipment. When offering feedback to Basecamp through resupply write out your comments and be specific in requests. Don't assume requests will be honored because the logistical staff is supporting five other groups in the field and at Basecamp.

Transportation

Environmental Briefing (Required Presentation)

1. (Rule) When traveling in trucks everyone will be inside the vehicle and seated. No one may sit on the edge of the pick-up box or lean against the tailgate.

2. As we travel, temperature and weather may change. Be prepared for cool rainy weather.

3. Keep arms inside the truck box.

4. Please don't yell unless an emergency is present. Drivers will stop to check the group if someone yells out.

5. Brief students on route and estimate of time on the highway so they can settle into the truck comfortably. On long drives plan a number of stops to stretch legs and use the lua.

Guidelines for drivers Drive defensively and more slowly than necessary. It's frightening to ride in the back of an open pick-up truck at speeds over 45 mph after coming out of the wilderness where movement is very slow.

Trailer considerations

Load canoes stern to front, no closer than tape mark on tongue.
Pull on tie-downs, they should sound a high-pitched note if tight enough.
Check ball-hitch, lock and cotter pin.
Check safety chain, crossed and bolted.
Electrical connections secure.
Secure all gear into canoes, light gear underneath.

Equipment

Individual equipment is issued to each instructor and student. The equipment is kept throughout the course. It is their responsibility, and is not to be shared with others.

Group gear is used by the 'ohana. Most of this gear, like tarps and stoves, is kept throughout the course. Some, like machetes and fuel bottles, are replaced at resupplies or used only in a particular environment. The group, including the instructor, takes responsibility for its care.

Ocean gear is equipment, including canoes, which is used only in the ocean environment. This equipment is used and passed on to another group in the same condition as received.

Other gear includes various pieces of equipment used by logistics in supporting the group at resupplies and maintaining operations of the school. Its use is restricted to logistics workers. Logistics people take responsibility for the care of this equipment.

Individual Gear	Group Gear	Ocean Gear	Other Gear
pack	First Aid kit	canoes	water containers
sleeping bag	fuel bottles	'iako	resupply boxes
stuff sack	funnel	ama	medical kit
over bag	stoves	EPIRB's	ice chest
over bag sack	cookset	bamboo poles	trailer & cradle
ensolite pad	food canisters	paddles	tools
liner	saw	spears	repair materials
poncho	machete	mesh bags	office supplies
cup	pressure cooker	sea bags	
spoon	fire rack	life preservers	
canteens	trowel	anchor, line	
	tarps	toilet	
	rope	canoe tarps	
	climbing gear	bailing buckets	
	utensils	canteens	
	file	cotton line	
	scaler	rubber ama pads	
	maps	spearpoint pipe	
	compass	sling rubber	
		coconut grater	
		toilet brush	
		food buckets	
		gear buckets	
		water buckets	
		Emergency buckets	
		flares and gun	
		ocean map	
		sea anchor	
		reflector mirror	
		underwater lights	
		toilet chemicals	

Stoves We use Optimus 111B stoves. They are exceptionally sturdy. Repairs on the stoves are done by equipment persons at Basecamp, although some replacement of worn parts can take place in the field. These parts, graphite packing and leather piston cups, are found in the first aid kit. Logistics people usually carry a spare stove at resupply, so if your is defective, LABEL it indicating the problem and return it to them.

Lighting the stove

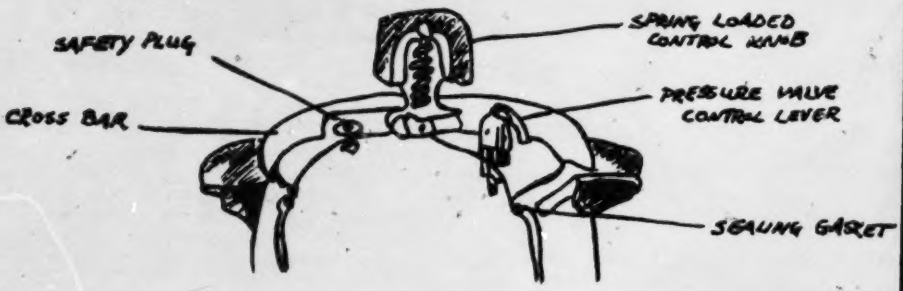
Turn knob all the way both directions to clean nozzle.
Fill tank 2/3 full (leave an air space) with white gas.
Turn knob as far to the right as possible. (CLOSED)
Pump four or five strokes only to build up pressure.
Turn knob a little to the left for a moment until the flame ring becomes wet with gas, then close the knob.
Light gas carefully, wait until it is almost burned out, then turn the knob a little to the left again to start stove burning.
When the loose yellow flames change to a small intense blue flame, the stove is ready to turn up and use.
If the flame is uneven or sputters, turn the knob all the way to the left (CLEAN) so the cleaning needle will poke out and clean the nozzle, then turn it back. Hold a lit match in hand to relight if the stove goes out.

Leaks If the stove leaks around the spindle, first try tightening the nut with the tool in the stove. Don't force it. If this is not effective then usually the graphite packing is worn and must be replaced. Remove spindle nut with tool, replace packing being careful not to lose small washer and put it back together. Any other leaks are repaired at Basecamp.

Pressure loss If the stove cannot build up sufficient pressure with the pump, likely the leather cup on the piston is worn. This is usually best done at resupply as you need a screwdriver and pliers. After putting on a new leather cup, oil it well and be careful that you do not rip it when putting it back into the piston cylinder on the fuel tank. Apply oil to piston rod and cylinder before putting them together.

Saltwater Keep stoves away from salt water. On the ocean transport stoves in sealed water buckets, not in leaky sea bags.

Pressure Cooker The pressure cooker cooks with steam under high pressure and is potentially dangerous if not used properly.



Before using the PC, check it out:

Flip up pressure valve control lever (PVCL) and blow through it from the bottom to be sure its not clogged.
Run you finger around under the lip of the pot to make sure it is clean and free of old food particles.
Inspect the rubber gasket around the edge of the lid,be sure there is no gunk on or under it that might prevent a good seal.

Loading the PC:

Fill only half full to allow for expansion, one doesn't want food to clog the PVCL.
Avoid cooking thick liquids like soups under pressure that might boil up and clog the PVCL.
Be sure the lid fits securely and solidly by tapping it.

Operating the PC:

Put in the food and water and secure the lid.
Flip up the PVCL, turn up the heat and bring to a boil.
When boiling, let thick steam with a good hiss come out of the PVCL for a minute, then flip down the PVCL, leave heat up.
The pressure will build up and shortly steam will again come out of the PVCL. When this becomes a hiss turn down the heat to a simmer temperature. At this time the cooking time begins.
Legumes and grains take 12 to 20 minutes; at altitudes add time.

Opening the PC:

The PC must be cool before opening or the steam may scald the person opening it.
Cool it on the ground, in fresh water, or pour water over it.
Open PVCL cautiously with a spoon to let the last of the steam escape.

After using the PC:

Wash carefully in fresh water, clear the PVCL, pack carefully.

Nylon Articles (tarps, ponchos, sleeping bags, packs, stuff sacks)

Lava Nylon is highly allergic to lava. Simply laying a tarp or poncho on the lava and picking it up carelessly can make a rip or puka sufficient to let water through. Never let a poncho, tarp or sleeping bag touch lava for any reason. When laying packs and stuff-sacks on the lava, do so with care. Sitting on a poncho or tarp on any bare ground is forbidden.

Saltwater Nylon is also adversely affected by salt and salt water. Keep them well away from the ocean and from sand washed by the ocean.

Sleeping Bags As well as being eaten by lava, sleeping bags have very sensitive zippers. Stress care and time in zipping up sleeping bags. Zippers cost $8 apiece so teach a cautious method for zipping and unzipping.

Ensolite Ensolite pads absorb salt and then disintegrate. They are to be kept away from any salt water.

Climbing Gear Climbing equipment is safety equipment. Logistics has a rigorous inspection procedure for climbing gear and all equipment related to safety. Watch out for the smallest defect in climbing equipment and report it immediately.

Return climbing gear clean and with ropes neatly coiled. Tie swami belts up.

Check entire length of ropes and swami belts for frays and cuts as you work with it. Report any deterioration in carabiners and helmets.

Life Preservers Life preservers are usually kapok or other stuffing in a watertight plastic bag covered by nylon. If left in the sun they pop; keep them in the shade. Never sit or lean on or place heavy objects on them or they pop. When they pop they must be thrown away.

Bailing Buckets, Emergency Buckets, Anchor Line These three items must remain with the canoes if they hull. Always be certain they are tied to the canoe. Be sure the anchor line is secured to the canoe.

Flares and Maps In contact with salt water both are damaged. Be sure they are securely in plastic bags and that the bucket lid is down tightly.

Returning Equipment at Course End At pau hana time all gear is checked in through a logistics person. Logistics tries to maintain an inventory, isolate damaged equipment for repair, and have equipment ready to be sent out for the next group. Be helpful by returning clean gear and identifying problems. Instructors and logistics together agree on a specific time for the turning in of individual, group, and ocean gear. Instructors guide students in cleaning and repair of equipment. Logistics people check in and store equipment. Charges for lost or damaged equipment is made at this time.

Individual gear should be the proper numbers, clean, and dry. Group gear should be returned in ONE pile. (Stoves, cooksets, and pressure cooker washed and dry with wood smoke scrubbed off pots). Ocean gear is washed in fresh water and laid in the sun to dry.

Food Along the Trail This manual has considerable material on natural foods that can be added to meals: a small piece of limu or a few opihi can add new flavor to a dish, fernheads and watercress can add vitamins and freshness to a soup, ohelo or thimble berries are good with breakfasts, fresh growing sprigs of honohono grass in soups and on spaghetti, and mamaki-kokoolau tea with honey and cinnamon.

Food, Environment and Health We move in radically changing environments; temperatures, elevations and humidities. Our bodies and appetites change. Observe your students with an eye to the likelyhood that subtle changes in how food is prepared can improve their comfort.

At the beginning of the course in Kohala student's bodies begin adaptation. Some people need honey now to pick them up. Others might need weaning from sweets to start the process of building fat into muscle. Everyone needs protein and carbohydrates. Take care that tired students get enough to eat and don't sacrifice eating for resting. This is a time to explain trail-food and complementary proteins.

At the ocean people prefer to eat light, so use the ingredients with more water to make soups. Limu, opihi, fish, crabs, coconut can broaden the uses of the ingredients sent out. People avoid heavy meals, but have munchies from salt water mouth, so hold cookies and crackers back for midafternoon and late night snacks. Orange peels, coconut, squid, limu, fish and much else can be dried to take to the next environment, a continuity students can appreciate.

In the desert, keeping cool and drinking water is of primary importance. Drink lots of water before starting out at dawn and make meals as liquid as possible. If you eat salt you need even more water to balance it or you won't sweat. You won't lack salt, there is enough in the food, but you might overheat if you don't sweat. Cayenne pepper contains piperine which is a sweat producing agent, so people in hot areas eat pepper to keep cool.

On the mountain the altitude and cold causes dehydration. Students need plenty of liquids. Body temperature is important and digestion is sacrificed slightly by the body so it can keep warm. Hot cereal is warming and easy to digest. Acidity increases altitude sickness so avoid and dilute acid foods. The best heat producing foods are fats. On the other hand altitude produces queezy stomachs so a lot of fats at once cause nausea. Use butter and oil whenever you can, but spread it out over the day so it can be digested. Ginger, peppermint tea and other aromatics settle stomachs and relieve flatulance. Caffeine often relieves altitude headache.

Complementary Proteins Proteins are a combination of amino acids, all of which must be present at the same meal for complete nutrition. Meats generally contain a total balance of amino acids, but grains and vegetables do not. Different foods contain different amino acids in varying amount, so eaten together at the same meal they complement each other and give balanced nutrition. Each meal on a Hawaii Bound course has been planned nutritionally and among all else, contains a balance of complementary proteins. Grains, milk, cheese, soy, legumes, nuts, seafood, and yeast are combined to give a relatively red-meat free diet.

The course changes people's food attitudes and habits. It is a delicate task with potential positive and negative consequences. People change to a diet which is better for their bodies and take an active interest in food

However, people can be alienated from the trail food because it isn't the food they know and some feel a "health food trip" is being forced upon them. The instructor more than the menu plays the key role in helping students accepting a changed diet.

The Changing Menu The menu starts with a slight emphasis toward "straight food" and in 24 days moves toward a natural food diet. The first few rice dishes are white rice, the later ones are brown rice for example. Other changes incorporated into the course are from meat resupply dinners to vegetarian resupply dinners, from heavy, rich food to light, lean food, from larger to lesser quantities of food, from dryer, carbohydrate based to wetter, vegetable based foods, from calorie rich to vitamin rich foods, from familiar to less familiar, from refined grains to whole grains.

These changes in food have been in the menu for nearly a year and are worthy of considerable attention and support from the instructor. It is for the instructor to find an overview on the evolving diet in the field and to help students develop understanding and interest in diet.

READINGS

On reasons for going into the wilderness.

"I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear; nor did I wish to practice resignation, unless it was quite necessary. I wanted to live deeply and suck out all the marrow of life, to live so sturdily and Spartanlike as to put to rout all that was not life, to cut a broad swath and shave close, to drive life into a corner, and reduce it to its lowest terms, and, if it proved to be mean, why then to get the whole and genuine meanness out of it, and publish its meanness to the world; or if it were sublime, to know it by experience..." Henry David Thoreau, Walden

On being on the summit of a mountain.

"You cannot stay on the summit forever. You have to come down again, so why bother in the first place? Just this. What is above knows what is below, but what is below does not know what is above. One climbs and one sees; one descends and one sees no longer, but one has seen. There is an art of conducting oneself in the lower region by the memory of what one saw higher up. When one no longer sees, one can at least still know."
Mount Analogue

When having questions and feeling uncertain.

"...be patient toward all that is unsolved in your heart and try to love the questions themselves, like locked rooms and like books that are written in a foreign tongue. Do not now seek the answers, which cannot be given you because you would not be able to live them. And the point is, to live everything. Live the questions now. Perhaps you will then gradually, without noticing it, live along some distant day into the answer."
Turtle Island, Gary Snyder

On listening.

"They called her wonderful. Thank you, Mira. You've helped me so much. I feel so much better. You're wonderful. When she did not know, really, what they were feeling, did not understand their particular pain, their particular need. How then could she help? She had not helped, she had done nothing but listen. Yet they were not lying. She had helped, listening. She had not insisted that they be happy people with happy problems, that their problem was that they had not learned how to fit into a rational and comprehensible world. All she had done was, unblinking and uninterrupting, let them be whatever horrible creature they thought they were."
The Women's Room, Marilyn French

On the wilderness and the wisdom of primitive peoples.

I am a poet. My teachers are other poets, American Indians, and a few Buddhist priests in Japan. The reason I am here is because I wish to bring a voice from the wilderness, my constituency. I wish to be a spokesman for a realm that is not usually represented either in intellectual chambers or in the chambers of government.

I was climbing Glacier Peak in the Cascades of Washington several years ago, on one of the clearest days I had ever seen. When we reached the summit of Glacier Peak we could see almost to the Selkirks in Canada. We could see south far beyond the Columbia River to Mount Hood and Mount Jefferson. And, of course, we could see Mount Adams and Mount Rainier. We could see across Puget Sound to the ranges of the Olympic Mountains. My companion, who is a poet, said: "You mean, there is a senator for all this?"

Unfortunately, there isn't a senator for all that. And I would like to think of a new definition of humanism and a new definition of democracy that would include the nonhuman, that would have representation from those spheres. This is what I think we mean by an ecological conscience.

I don't like Western culture because I think it has much in it that is inherently wrong and that is at the root of the environmental crisis that is not recent; it is very ancient; it has been building up for a millenium. There are many things in Western culture that are admirable. But a culture that alienates itself from the very ground of its own being - from the wilderness outside (that is to say, wild nature, the wild, self-contained self-informing ecosystems) and from that other wilderness, the wilderness within - is doomed to a very destructive behavior, ultimately perhaps self-destructive behavior.

The West is not the only culture that carries these destructive seeds. China had effectively deforested itself by 1000 A.D. India had effectively deforested itself by 800 A.D. The soils of the Middle East were ruined even earlier. The forests that once covered the mountains of Yugoslavia were stripped to build the Roman fleet, and those mountains have looked like Utah ever since. The soils of southern Italy and Sicily were ruined by latifundia slave-labor farming in the Roman Empire. The soils of the Atlantic seaboard in the United States were effectively ruined before the American Revolution because of the one-crop (tobacco) farming. So the same forces have been at work in East and West.

You would not think a poet would get involved in these things. But the voice that speaks to me as a poet, what Westerners have called the Muse, is the voice of nature herself, whom the ancient poets called the great goddess, the Magna Mater. I regard that voice as a very real entity. At the root of the problem where our civilization goes wrong is the mistaken belief that nature is something less than authentic, that nature is not as alive as man is, or as intelligent, that in a sense it is dead, and that animals are of so low an order of intelligence and feeling, we need not take their feelings into account.

A line is drawn between primitive peoples and civilized peoples. I think there is a wisdom in the worldview of primitive peoples that we have to refer ourselves to, and learn from. If we are on the verge of postcivilization, then our next step must take account of the primitive worldview which has traditionally and intelligently tried to open and keep open lines of

communication with the forces of nature. You cannot communicate with the forces of nature in the laboratory. One of the problems is that we simply do not know much about primitive people and primitive cultures. If we can tentatively accommodate the possibility that nature has a degree of authenticity and intelligence that requires that we look at it more sensitively, then we can move to the next step."

Turtle Island, Gary Snyder

On solitude and the vastness of wilderness.

"In quiet, silence, we are less impinged upon by the external world and so we can be more in touch with our inner selves this is a rare experience. In our busy way of living, we are always trying to be in contact with the external world, which has it merits, of course, but also demerits, the major shortcoming being that we're less in contact with our inner resources, what Freud called the primary process.

Our usual way of using our minds, which permits us to interpret the external world, Freud called the secondary process. The primary is a more primitive part of our minds: more primitive but also more unexplored, more unpredictable, and its resources have never been totally tapped or appreciated. When there is quiet, we are in a better position to let this inner part reemerge. We could use it as a source of creativity, for seeing dimensions that we don't see otherwise, and as a source of spiritual power.

Something similar to this happens when we sleep and have a dream. We have removed entirely the external world. It is quiet; we do not hear anything. And then what happens is this inner part comes to the surface in the form of dreams, the language of which we don't use every day. At extremes of aloneness - for instance when people are stuck on a polar expedition, or on a desert or an island - this inner part comes in the form of mirages, illusions, or hallucinations. Naturally, I don't advocate that we go to those extremes, but I do believe that periods of quietness and aloneness are very helpful and permit us to explore unpredictable things.

As a matter of fact, in many myths, there is a tradition of this type which has some basis in scientific reality. We know, for example, that, in the Biblical story of Moses, Moses went to Mount Sinai alone and in this state of aloneness he had those revelations which are the foundations of the Torah and of the Old Testament, and of the Judeo-Christian heritage. You find the same thing in Mohammedism, and throughout history, you see that the grate sages went into retreat, to places where they could be in contact with this inner part of themselves, which gave them new ways of exploring not only themselves but the whole cosmos.

The contact with nature promotes the primary process. Space and quiet put the individual into a state of receptivity to inspiration."

"Some people have the feeling that when a person stands before great space, at the edge of the ocean or on a peak of a mountain, that the person feels little, like a worm, in comparison to the magnitude surrounding him. This is counter to my own observation and experience. Obviously, we are nothing in comparison to the cosmos; but, when we see this infinity of space, I think we have a feeling of elevation, an uplifting of the spirit - we have what some psychologists call a "peak experience" and feel greater than ever before.

Now, how is it to be explained that we, so small, feel enhanced rather than reduced by the comparison? First, we are intensely aware of the fact that we are able to experience the beauty in front of us, and we appreciate this capacity of ours. So, when we see the mountain, we see not only its beauty but also the beauty of the human being who is able to appreciate the sight and have the peak experience. Second, no matter how great is the universe, with our nervous systems and our brains we are able to conceive of its immensity, at least as a concept; and, since it is our concept, it becomes part of us. And third, what we see in the space in nature seems to be more authentic; it has not been adulterated by man, and therefore does not wear any mask. So we feel more authentic and genuine and able to respond to the two great infinities; the infinity of the external world and the infinity of the creativity - the unknown possibilities- of our inner world.

Space is a reminder of reality and a reminder of the need to refill this vastness. In the face of space, the human being has not only a deep and religious feeling of infinity but also the desire - and this is in the Judeo-Christian tradition - to become a partner of God in the act of creating, of putting something into this world." Silvano Arieti, M.D., psychiatrist.

BIBLIOGRAPHY

Ancient Hawaiian Civilization, A series of Lectures Delivered at the Kamehameha Schools, Tuttle, Rutland, Vermont, 1965.

Beck, Ann E., "Values Clarification and the Changing Role of Women", 1976.

Beckwith, Martha W., Hawaiian Mythology, University Press, Honolulu, 1970.

Beckwith, Martha W. editor, The Kumulipo, a Hawaiian Creation Chant, Chicago Press, Chicago, 1951.

Bishop, Isabella Bird, Six Months in the Sandwich Islands, University Press, Honolulu, 1964.

Bryan, Edwin H., Ancient Hawaiian Life, Honolulu Advertiser, Honolulu, 1938.

Bryan, E.H. Jr., "Astronomy and the Calendar", Ancient Hawaiian Civilization, Charles E. Tuttle Co.,Rutland, Vermont.

Buck, Peter H., Arts and Crafts of Hawaii, Vol. I-XIV, Bishop Museum, Honolulu, 1964.

Carlquist, Sherwin, Hawaii: A Natural History, The Natural History Press, Garden City, N.Y., 1970.

Damon, Ethel, Father Bond of Kohala: A Chronicle of Pioneer Life in Hawaii, The Friend, Honolulu, 1927.

Daws, Gavan, Shoals of Time: A History of the Hawaiian Islands, MacMillan, New York, 1968.

Degner, Otto, Plants of Hawaii National Parks, Braun-Brumfield, Inc., Ann Arbor, 1930.

Dinkmeyer, Don C. and Muro, James J., Group Counseling, Theory and Practice, F.E. Peacock Publishing, Inc. Itasca, Illinois, 1971.

Elbert, Samuel, Na Mele o Hawaii Nei, University Press, Honolulu, 1975.

Ellis, Rev. William, Narrative of a Tour through Hawaii, Crocker and Brewster, Boston, 1825.

Emerson, Nathaniel B., Unwritten Literature of Hawaii, the Sacred Songs of the Hula, Tuttle, Rutland, Vt., 1965.

Fluegelman, Andrew, ed., The New Games Book, Doubleday and Co.,Inc., New York, 1976.

Fornander, Abraham, Selections from Fornander's Hawaiian Antiquities and Folklore, University Press, Honolulu.

Fortner, Heather J. The Limu Eater: A Cookbook of Hawaiian Seaweeds, Sea Grant, Honolulu, 1978.

Greeley, Ronald, ed., Geologic Guide to the Island of Hawaii, University of Santa Clara, 1974.

Gutmanis, June, Kahuna La'au Lapaau, Island Heritage, Honolulu, 1977.

Hale, Alan, Instructor's Manual, Minnesota Outward Bound School, Minneapolis, 1972.

Hawaiiana, Aloha Council of Boy Scouts, Honolulu, 1973.

Handy, Edwin S., The Native Planter, Bishop Museum Honolulu, 1940.

Handy, Edwin S. and Mary Kawena Pukui, The Polynesian Family System in Ka'u Hawaii, Polynesian Society, Wellington, N.Z., 1951.

Hawaii's Audubon Society, Hawaii's Birds, Audubon Society, Honolulu, 1967.

Howe, Leland W. and Howe, Mary Martha, Personalizing Education: Values Clarification and Beyond, Hart Publishing Co., Inc., 1975.

Ii, John Papa, Fragments of Hawaiian History, Bishop Museum, Honolulu, 1959.

Kaaiakamanu, C., Hawaiian Herbs of Medicinal Value, Pacific House, Honolulu.

Kalakaua, David, Legends and Myths of Hawaii, Webster, New York, 1888.

Kamakau, Samuel Manaiakalani, The Ruling Chiefs of Hawaii, Kamehameha Schools, Honolulu, 1961.

Kay, E. Alison, ed., A Natural History of the Hawaiian Islands: Selected Readings, University Press, Honolulu, 1972.

Krauss, Beatrice H., Ethnobotany of Hawaii, Dept. of Botany, University of Hawaii, Honolulu.
Liliuokalani, Lydia, Hawaii's Story by Hawaii's Queen, Tuttle, Rutland, 1964.
Lind, Andrew, Hawaii's People, University Press, 1967.
Malo, David, Hawaiian Antiquities, Bishop Museum, Honolulu, 1951.
Mellen, Kathleen, The Lonely Warrior; The Life and Times of Kamehameha the Great of Hawaii. Hasting House, New York, 1969.
Merlin, Mark David, Hawaiian Coastal Plants and Scenic Shorelines, Oriental Publishing Co., Honolulu, 1976.
Merlin, Mark David, Hawaiian Forest Plants, Oriental Publishing Co., Honolulu, 1976.
Neal, Marie C., In Gardens of Hawaii, Bishop Museum, Honolulu, 1948.
Pukui, M.K., E.W. Haertig and Catherine Lee, Nānā I Ke Kumu, Hui Hanai, Honolulu, 1972.
Pukui, Mary Kawena, Place Names of Hawaii, University of Hawaii, Honolulu, 1974.
Pukui, Mary Kawena, The Waters of Kane and Other Legends of the Hawaiian Islands, Kamehameha Schools, Honolulu, 1960.
Rock, Joseph F., The Indigenous Trees of the Hawaiian Islands, Tuttle, Rutland, 1974.
Simon, Sidney B., Howe, Leland W., and Kirschenbaum, Howard, Values Clarification, Hart Publishing Co., Inc., New York.
Simon, Sidney B., and Kirschenbaum, Howard, Ed., Readings in Values Clarification, Winston Press, Minneapolis, 1973.
Stearns, Harold T. Geology of the State of Hawaii, Pacific Books, Palo Alto, 1966.
Thrum, Thomas G., Hawaiian Folk Tales, McClung, Chicago, 1907.
Titcomb, Margaret, Native Use of Fish in Hawaii, Avery Press, New Plymouth, N.Z., 1952.
Tinker, Spencer Wilkie, Hawaiian Fishes, Tongg, Honolulu, 1944.
Westervelt, William Drake, Hawaii Legends of Ghosts and Ghost Gods, Tuttle, Rutland, 1963.
Westervelt, William Drake, Hawaiian Historical Legends, Revell, New York, 1926.
Westervelt, William Drake, Hawaii Legends of Volcanos, Tuttle, Rutland, 1963.
Wilkes, Charles, Narrative of the United States Exploring Expedition, Lea and Blanchard, Philadelphia, 1845.
Wirtz, Richard, Moon Calendar; The Seasons of Mahina.
Zimmerman, Elwood Curtin, Insects of Hawaii, University of Hawaii Press, Honolulu, 1948.

EMERGENCY TELEPHONE NUMBERS

When calling Basecamp to report an emergency be sure to give the phone number you are calling from, even if it is a pay phone, and be sure one person REMAINS BY THE PHONE. In cases involving ocean rescue and other rescue services the rescue party will not go out unless they can confirm the emergency situation by calling you back.

Hawaii Bound School Numbers

Basecamp 885-4633
Administrative Office . 1-946-6502
Basecamp Manager (home). . 775-0942
Exec. Director (home) . 1-955-0924
Assoc. Director (home) . 1-947-3027

Drug Related Emergencies

Call nearest hospital
Help-Line for psychiatric and counseling help . 961-6011
Hilo Counseling 935-3709
Awareness House. 323-2979
Women's Resource Center. . 961-2737
Poison Center. 1-537-1831

Ocean Rescue

Hilo Fire Department . . . 961-6022
(Always call Fire Dept.)
Kona USCG Aux. Mr. Penrose 323-3342
Hilo USCG Aux/Drummond . . 935-5695
USCG Cutter Cape Small/ Hilo 935-6370
(if no answer call) . 889-6454

Kona

Police 323-2645
Ambulance 322-9311
Kona Hospital Emergency. . 322-9311

Ka'u

Police 929-7331
Ambulance (noon to eight). 929-7331
(other hours). . 928-8331
Pahala Hospital Emergency
(eight to four). 928-8353
(other hours). . 928-8331

Mauna Loa and Mauna Kea

Pohakuloa Military Base . 961-3838

Kamuela

Police 885-7334
Ambulance 885-7334
Lucy Henriques Hospital Emergency Room. 885-7921
Waimea Medical Associates. . 885-7351

Kohala (Pololu/Honokane)

Police 889-6225
Ambulance. 889-6211
Kohala Health Center 889-6236
(after hours) 889-6211
Kohala Corporation (to report major ditch problems) . 889-5171

Honokaa (Wapio/Waimanu)

Police 775-7228
Ambulance 775-7211
or
961-6022
Honokaa Hospital Emergency . 775-7211

Volcano National Park

Park Headquarters 967-7311
Rangers after hours 967-7580
967-7457
967-7225
Police 966-9388
Ambulance 961-6022
Hilo Hospital Emergency . . 961-4213

Hilo

Police 935-3311
Ambulance 961-6022
Hilo Hospital Emergency . . 961-4213

Other Numbers

Weather (Hawaiian waters). . 935-9883
(Island) 935-8965
To talk to someone 935-5533